State of California
Department of Transportation
District 4

Carbon Monoxide Concentrations Adjacent to Ramp Meters (Supplementary Report)

SCL-280 at De Anza Boulevard
SCL-85 at Camden Avenue
Santa Clara County
Winter 1994-95
04334-936203

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CONVERSION FACTORS

English to Metric System (SI) of Measurement

Quantity	English Unit	Multiply by	To get metric equivalent
Length	inches (in) or(")	25.40	millimetres (mm)
		0.2540	metres (m)
	feet (ft)	0.3048	metres(m)
	miles (mi)	1.609	kilometres (km)
Area	square inches (in^2)	6.432×10^{-4}	square metres (m^2)
	square feet (ft^2)	.09290	square metres (m^2)
	acres	.4047	hectares (ha)
Volume	gallons (gal)	3.785	litres (l)
	cubic feet (ft^3)	.02832	cubic metres (m^3)
	cubic yards (yd^3)	.7646	cubic metres (m^3)
Volume/Time (Flow)	cubic feet per second (ft^3/s)	28.317	litres per second (l/s)
	gallons per minute (gal/min)	.06309	litres per second (l/s)
Mass	pounds (lb)	.4536	kilograms (kg)
Velocity	miler per hour (mph)	.4470	metres per second (m/s)
	feet per second (fps)	.3048	metres per second (m/s)
Acceleration	feet per second squared (ft/s^2)	.3048	metres per second squared (m/s^2)
	acceleration due to force of gravity (G)	9.807	metres per second squared (m/s^2)
Weight Density	pounds per cubic foot (lb/ft^3)	16.02	kilograms per cubic metre (kg/m^3)
Force	pounds (lbs)	4.448	newtons (N)
	kips (1000 lbs)	444.8	newtons (N)
Thermal Energy	British thermal unit (BTU)	1055	joules (J)
Mechanical Energy	foot-pounds (ft-lb)	1.356	joules (J)
	foot-kips (ft-k)	1356	joules(J)
Bending Moment of Torque	inch-pounds (ft-lbs)	.1130	newton -metres (Nm)
	foot-pounds (ft-lbs)	1.356	newton-metres (Nm)
Pressure	pounds per square inch (psi)	6895	pascals (Pa)
	pounds per square foot (psf)	47.88	pascals (Pa)
Stress	kips per square inch square root inch (ksi $\sqrt{in}$)	1.0988	mega pascals $\sqrt{metre}$ (MPa $\sqrt{m}$)
	pounds per square inch square root inch (psi $\sqrt{in}$)	1.0988	kilo pascals $\sqrt{metre}$ (KPa $\sqrt{m}$)
Plane Angle	degrees (°)	0.0175	radians (rad)
Temperature	degrees fahrenheit (F)	$\frac{tF - 32}{1.8} = tC$	degrees celsius((°C)

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The author again wishes to thank the following individuals for their assistance in making this investigation possible:

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Rod Oto of Caltrans District 4 Traffic Systems Branch for developing detailed traffic data.

Special thanks to John Tougher, Apple Computer Inc., for once again providing us with electrical power, for space in the Apple Corporation R & D properties parking lot and for also keeping an eye on our van and equipment during the sampling period. We also wish to thank Mr. Randy Sikk for agreeing to allow us to use part of his property to place our testing vehicle and for supplying our equipment with electrical power from an outlet located in his rear yard. Without his civic-mindedness, this study would have been limited to one site, greatly reducing its value.

SUMMARY

Table 1 -- Highlights of Pertinent Data and Information

Location	Site #1 @ Camden Ave. SB on-ramp meter bar		Site #2 @ De Anza Blvd. SB on-ramp meter bar	
Ramp Configuration	2 lanes to 1 lane No HOV **NO Metering**		3 lanes: 2 mixed = 1 HOV **PM Metering**	
Averaging Time	1-hour	8-hour	1-hour	8-hour
CA Standards Fed Standards	20.0 ppm 35 ppm	9.0 ppm 9 ppm	20.0 ppm 35 ppm	9.0 ppm 9 ppm
Maximum Day Date Time Day Date Time	**6.0 ppm** Wed. 11/30/94 0800-0900	**3.6 ppm** Wed. 11/30/94 1300-2100	**9.0 ppm** Wed. 01/18/95 1700-1800 & Wed. 01/19/95 0800-0900	**5.9 ppm** Wed. 01/18/95 1200-2000
BAAQMD Stations: Actual -- during above maximum	3.1& 3.8 ppm	3.4 & 3.7 ppm		
BAAQMD Stations: 1989 Isopleth Rollback Factor 1995 Isopleth (estimated)	15ppm x0.74= **11.1 ppm**	9ppm x0.74= **6.7 ppm**	15ppm x0.74= **11.1 ppm**	9ppm x0.74= **6.7 ppm**
Ramp Sites: 1989 Isopleth Rollback Factor 1995 Isopleth (estimated)	12ppm x0.74= **8.9ppm**	7ppm x0.74= **5.2ppm**	9ppm x0.74= **6.7ppm**	6.5ppm x0.74= **4.8ppm**
Max. Traffic: On-ramp Hour Mainline Hour Mainline Daily	464 vph 5255 vph 65k vpd		1952 vph 5212 vph 74k vpd	

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INTRODUCTION

This report is a supplement to the **Carbon Monoxide Concentrations Adjacent to Ramp Meters** report dated May 20, 1994. Shortly after production and circulation of the above report, MTC relaxed their concerns over ramp metering and now include these projects in their Small Project Guidance guidelines to Sponsors. It was, however, suggested that additional CO data collection continue for an additional CO sampling year to support the conclusions made in the report.

Continuing Efforts

On September 15, 1993, MTC distributed a "Small Project Guidance" to project sponsors allowing for a simple four-question assessment of traffic and geometric factors for qualifying projects in high background (> 6 pm) CO areas, principally Santa Clark County. MTC staff have stated that for qualifying projects in low background (≤ 6 pm) CO areas, the CO assessment need not be done at all.

MTC has interpreted their Small Project Guidance as not applicable to ramp metering projects. Caltrans cited specific mention of "traffic signal installations" as one basis for inclusion, but MTC cited the widening of on-ramps - done for either vehicle storage of HOV bypass purposes -- as the basis for exclusion. (See discussion of MTC Resolution No. 2270 below.) On the other hand, neither agency felt ramp metering belonged grouped with "major" projects; both agencies agreed ramp metering projects deserved some kind of special treatment.

Field Study

Immediately thereafter, the District 4 Environmental Engineering Branch decided to initiate a CO monitoring study adjacent to two operational metered ramp locations during the winter 1993-94 CO season. The results of this study were published in May of 1994. The goal of this investigation was to measure what we could not model, and determine as best we could the real-world impacts of ramp metering on adjacent local CO concentrations.

At a meeting held January 20, 1994, preliminary investigation results were presented to MTC and BAAQMD, indicating CO levels well below standards at both sites. An action plan was formulated and later confirmed in a letter from MTC to Caltrans, dated February 18 1994 Pending fulfillment of the action plan, which includes concurrence on a methodology which references the above report, MTC will be able to review ramp metering projects for conformity based on the new approach.

This report, which is a supplement to the May 20, 1994 report summarizes additional data that was collected during the 1994-95 winter CO season. The results of this report supports the conclusions previously drawn.

As in the 1993-94 sampling period, efforts were made to select sites with the highest likelihood of finding CO hot-spots. The sites selected during that period which appeared to meet all of the selection criteria were the DeAnza Boulevard on-ramp to southbound SCL-280 (PM peak period, 2 SOV + 1 HOV), and the Blossom Hill Boulevard on-ramp to northbound SCL-101 (AM peak period, 1 SOV + 1 HOV).

The DeAnza site was again selected for this sampling period plus the Camden Avenue on-ramp to southbound SCL-85 (AM peak period, 2 SOV merging to 1 lane: no HOV).

Re-selection of the DeAnza site allows for the comparison of the values that were taken the previous year. The Camden site is located on the newly opened SCL-85 freeway. This freeway was opened around the beginning of November 1994. The District 4 Traffic Branch had scheduled an initial testing period of the ramp meters sometime in the later part of November and December. This schedule would allow for the analysis of data collected on a new freeway where traffic volumes are still low and a possible comparison of CO concentrations can be made with and without ramp metering.

BACKGROUND

Regulatory

The Federal Clean Air Act and Conformity

The Federal Clean Air Act as amended in 1990 (FCAAA), requires that all transportation plans, programs, and projects which are funded or approved under title 23 U.S.C. or the Federal Transit Act be found to "conform" to the intent of the applicable State Air Quality Implementation Plan (SIP), which for the SF Bay Area is still the 1982 Bay Area Air Quality Plan. The Final Transportation Conformity Rule, promulgated by the Environmental Protection Agency (EPA), effective December 27, 1993, established the criteria and procedures for making these conformity determinations.

For FHWA/FTA projects, one of these criteria is that the

"project must not cause or contribute to any new localized CO or PM-10 violations of increase the frequency or severity of any existing CO or PM-10 violations in CO and PM-10 nonattainment and maintenance areas."

The rule goes on to provide for flexibility in how those determinations are made:

"...this criterion may be satisfied if consideration of local factors clearly demonstrates that no local violations presently exist and no new violations will be created as a result of the project." (See §51.434 or §93.121.)

In CO nonattainment areas during the Interim and Transitional periods preceding adoption of a SIP which incorporates the Final Rule, projects must additionally

"...eliminate or reduce the severity and number of (existing) localized CO violations in the area substantially affected by the Project..."

This requirement is also followed by a sentence which includes the phrase:

"...this criterion may be satisfied if consideration of local factors clearly demonstrates..." (See §51.434 or §93.121.)

The Final Conformity Rule emphasizes the timely implementation of Transportation Control Measures (TCMs) in the applicable SIP, presumably in recognition of their implicit benefit to regional air quality, while simultaneously not exempting TCM projects as a general category from any conformity requirements, particularly those related to localized CO violations. ramp metering is an integral component of both SIP TCM #4, "High Occupancy Vehicle Lanes and Ramp Metering," and the Traffic Operations Systems (TOS) included in SIP TCM #26, "Incident Management on Bay Area Freeways," from the SIP's Contingency Plan.

Lastly, in a discussion of project types which may proceed under sanction, the Congressional record states Congress intended to include, **"highway ramp metering, traffic signalization, and related programs that improve traffic flow and achieve a net emission reduction."**

In sum, although ramp metering is not exempt from conformity determinations or CO hot-spot evaluations, Congress does regard ramp metering as beneficial to overall emissions levels, and to the extent ramp metering is included in SIP TCMs, ramp metering should be implemented expeditiously.

MTC Resolution No. 2270

Particular to the San Francisco Bay Area and as the result of a lawsuit over implementation of the 1982 Bay Area Air Quality Plan, MTC Resolution No. 2270, adopted April 17, 1991, requires a detailed conformity analysis of "major: federal-action projects to determine the project's impact on local and corridor scale CO emissions. The definition of "major" project includes:

> *"... one which increases the capacity of the highway system through... (b) significant widening or addition of one or more lanes to an existing highway or (c) improvement of traffic flows through addition of ingress or egress facilities on or between existing highways."*

Analysis requirements for major projects include detailed travel demand forecasting and carbon monoxide analysis in order to satisfy MTC's "Project Sponsor Guidance and Checklist for Carbon Monoxide Analysis Performed for conformity Assessment of Transportation Projects," revised March 1993.

For projects <u>other</u> than "major projects", MTC resolution 2270 gives four examples of ways by which project sponsors can show **"it can reasonably be demonstrated the project or elimination of, the severity and number of carbon monoxide violations in the area substantially affected by the project,"** the last example of which is, **"Any other method which demonstrates that the project will not increase carbon monoxide emissions."**

Assuming ramp metering could be regarded as a non-major project, the original report was intended to be the heart of such a reasonable demonstration.

MODELING LIMITATIONS

Typically, local carbon monoxide concentration or "hot-spot" modeling for transportation projects in California is done using CALINE4, a line source pollutant dispersion model developed by Caltrans. CALINE4 uses project and site geometrics, worst-case meteorological assumptions, forecasted traffic speeds and volumes, and composite vehicle emissions rates to predict vehicle-based carbon monoxide concentrations at selected "receptor" locations which are then added to background CO levels determined by field data collection or in the absence of this data, from BAAQMD isopleth maps to arrive at a total. The composite emissions rates are derived from the EMFAC series of vehicle emissions factors published by the California Air Resources Board (ARB), the most recent version of which is EMFAC7F v1.1. The isopleth values can be modified by rollback factors which reflect the steady improvement of regional CO levels over time.

The EMFAC7F emissions factors are based on average driving speeds and do not break vehicle emissions out into "modal" emissions segregated into idle, cruise, acceleration, and deceleration. This is a key concept.

While CALINE4 is capable of predicting vehicle emissions at city street intersections by using an algorithm which derives modal emissions from EMFAC rates, initial attempts to use either this intersection link capability, or later a modified acceleration link version of CALINE4 known as "Beta Eta 2," to model metered freeway on-ramps yielded unbelievably high CO concentrations and were abandoned as unrealistic.

With regard to ramp metering and acceleration emissions, the following points illustrate the current limits of CO hot-spot modeling capability:

- EMFAC7 emissions factors are neither model nor specific to the particular characteristics of either freeways or ramp metering. -- they represent an estimation of emissions rates at various average speeds over a driving cycle (which begins and ends at zero speed) by applying "speed correction factors" to adjust for speeds above and below the 7.2m/s average of the standardized Federal Test Procedure (FTP) 75 driving cycle. Just as EMFAC rates cannot reflect the emissions differences between a steady speed and a standing-start sprint with the same average speed, they similarly cannot differentiate between steady flow and slow-and-go flow of a given average speed on the mainline. EMFAC is simply too general for a feature-specific evaluation of any transportation facility.

- Reasonable assumptions of vehicle acceleration behavior (whether obtained through basic constant-acceleration physics equations, or empirically through the test car runs where actual acceleration was inversely related to speed) result in the key acceleration-average speed product, AxS(m^2/hr^2-sec), frequently falling well above the range valid for use in CALINE4's exponential modal emissions equation.

- The CALINE4 intersection link algorithm assumes a time-weighted or "front-loaded" distribution of acceleration emissions and staggered starts of varying acceleration rates as one moves through the queue, whereas ramp metering starts are all from the stop bar. Furthermore, recent preliminary ARB research suggests "end-loaded" emissions distribution.

- Additionally, though CALINE4 was written in 1989, the intersection algorithm was based on data from 1975 and 1976 model year automobiles.

- Although there has been much speculation recently that acceleration events are responsible for a large share of vehicle emissions, insufficient research has been done to date on the emissions rates of modern vehicles in the acceleration mode to be able to model or quantify acceleration emissions.

DESCRIPTION OF WORK

GENERAL LOCATION AND SITE SELECTION CRITERIA

Field sites in the general San Jose area (See Exhibit 1) were deemed desirable for the following two reasons:

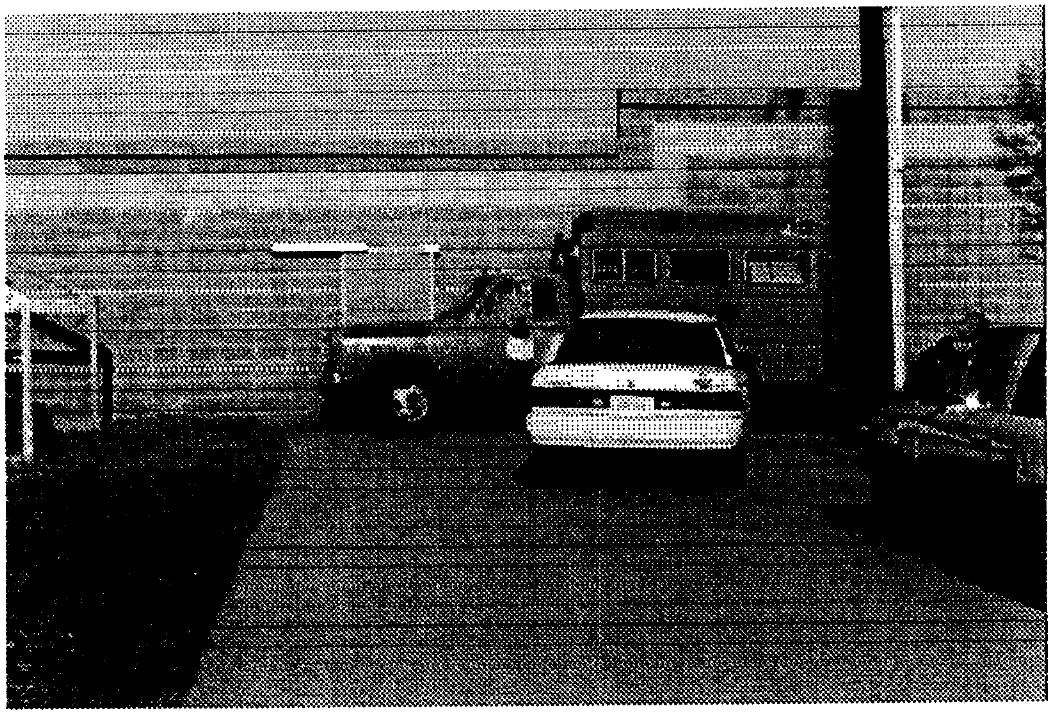
1) The highest subregional background CO levels in the San Francisco Bay Area are found in the San Jose area. BAAQMD isopleth maps (1989, revised August 1991) and rollback factors (revised June 1993) combine to indicate that in 1995, expected background CO levels in downtown San Jose can be as high as 11.1 ppm for a 1-hr period, and 6.7 ppm for an 8-hour Average. (See Appendix A)

2) Ramp meters are currently operational on a number of mainline freeway sections in the general San Jose area and under construction on others in the same area, including the SCL-85 corridor from Cupertino at SCL-280 to the junction of SCL-101 in southern San Jose. The SCL-85 freeway was opened to traffic in October, 1994. CO data collection commenced at the Camden site shortly thereafter.

Additionally, the physical locations of the monitor devices themselves clearly had to be both serviceable by the research team and meaningfully representative of actual worst case sensitive receptors. The sites selected in this report fulfilled these requirements.

In sum, the following criteria were used to select usable sites which were as representative as possible of worst conceivable sensitive receptor location and conditions:

- operational multi-lane metering, preferably at least one AM and one PM peak hour period,
- high sub-regional background CO levels,
- high mainline peak period volume and congestion,
- monitors in close downwind proximity to acceleration links,
- protection from the elements for equipment,
- continuous access to electrical power,
- intermittent or continuous access by field personnel.



Monitoring Van behind Camden Ave. Noise Barrier
at end of Carter Avenue

SITE DESCRIPTION

Site #1 -- Camden Ave. On-ramp to S/B SCL-85 in San Jose

(See Exhibits 1 & 2.) The on-ramp configuration consists of 1 metered lane. The entry onto the ramp from Camden is 2 lanes narrowing down to 1 lane approaching the stop bar. From the west on Camden Avenue, there is a free right turn lane into the ramp. Westbound traffic on Camden Avenue from the east making a left turn into the ramp is controlled by traffic signals. A 4.2 meter noise barrier exists along the right of way line from Camden Avenue and runs continuously southbound well past the ramp. When the metered ramp signal lights are operating, all traffic entering the freeway is controlled. The CO sampling probe was located about 2.5 meters above the ramp pavement and adjacent to the ramp metering signal mast. The Dasibi CO analyzer was located in a van behind the noise barrier at the end of Carter Avenue adjacent to a private citizen's home where electrical power was made available.

Monitoring Van along Right of Way fence adjacent to DeAnza Ave.
SB on Ramp in Apple Corporation R&D parking lot

SITE DESCRIPTION

Site #2 -- DeAnza Blvd. On-ramp to S/B SCL-280 in Cupertino

(See Exhibits 1 & 3) This location and equipment setup is the same as described in the previous report. The on-ramp configuration consists of 3 metered lanes; 2 mixed flow, and 1 HOV bypass. The CO sample prob was located 38 meters downstream (or east) of the stop bar and approximately 12 meters from the south edge of the acceleration lane at ground level. The Dasibi CO analyzer was located in a van in the parking lot of the Apple Computer Co.s R& D Center. Electrical power was drawn from the electrical block house approximately 100 meters north along the State's right of way fence.

BAAQMD PERMANENT MONITORING STATIONS

"SJSC" or "Burbank:" -- 1866 West San Carlos St. in San Jose
Located between Irvine Avenue and Leland Avenue and approximately:

- 1.3 km northeasterly of the Rte 17/280/880 interchange in San Jose,
- 3.9 km west and slightly south of the BAAQMD monitoring station "SJ4T" on North 4th Street,
- 8.3 km north by northwest of Site #1 at Route 85/Camden Avenue in San Jose and
- 9.2 km east by southeast of Site #2 at Route 280/DeAnza Boulevard in Cupertino

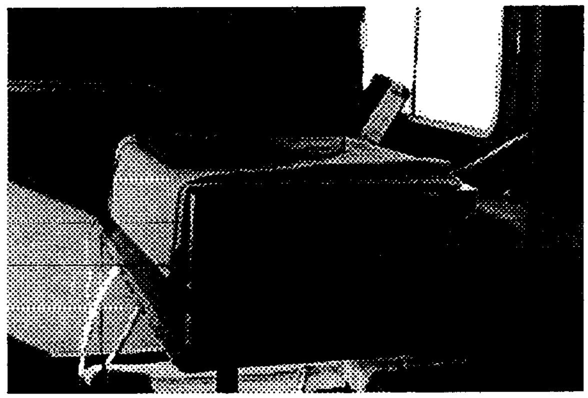
See Exhibit 1 for Location Map

"SJ4T" or "San Jose" -- 120 North 4th Street in downtown San Jose
Locate near St. John Street and approximately:

- 1 km north of the Rte 87/280 interchange,
- 3.9 km east and slightly north of the BAAQMD monitoring station "Burbank" on West San Carlos Street,
- 10 km east by northeast of Site #1 at Rte 85/Camden Avenue in San Jose,
- and 12.5 km east by southeast of Site #2 at Rte 280/DeAnza Boulevard in Cupertino.

See Exhibit 1 for Location Map

EQUIPMENT AND METHOD



Appendix B itemizes the equipment utilized to conduct the field data collection of CO samples at the ramp sites. Similar equipment at both sites allowed for continuous monitoring of CO concentrations through the use of Dasibi Environmental Corporation Gas Filter Correlation CO Analyzers. Data was initially recorded on data loggers in 5-minute average increments for the last 24 hours prior to data collection approximately every week and in 1-hour increments every day of logging 24 hours per day. Downloading of data was to a portable personal computer. Rolling 8-hour averages were extracted later.

The Dasibi equipment was operated in compliance with US EPA designated reference method RFCA-0488-067, April 1988, approved range 0-50 ppm. The analyzers were wrapped in insulating material to allow the built in heaters to maintain an internal acceptable operating environment specified by both Dasibi and US EPA.

At both the SCL-280 (DeAnza) and the SCL-85 (Camden) sites the equipment was housed in a State monitoring van. Tygon tubing acted as probes between the analyzers and the sampling locations.

It was the intent of this testing routine to utilize a weather station at the same location as installed in the previous report. However, the wind speed/direction probe malfunctioned and repairs to this unit were not completed in time to make use of meteorological equipment.

DATA ANALYSIS AND DISCUSSION

The 8-hour CO concentration averages and the maximum 8-hour average value for the CO season was determined by running all of the collected data through the State's "Observed Maximum" computer program.

This supplemental CO study as with the previous report makes no attempt to either validate or challenge the CALINE4 dispersion model in that we did not collect or analyze data on a detailed enough level to derive quantitative relationships between the many variables which affect the CO concentration at any given receptor.

The general thinking was that if no exceedences were observed, the level of detail undertaken in this study would, in hindsight, be deemed sufficient. If exceedences were measured, more detailed research to determine contributing sources and factors (i.e., differentiation of background CO, mainline emissions, and on-ramp emissions; statistical analysis of traffic and meteorological conditions, etc....) would be indicated.

FIELD DATA FROM ON-RAMP SITES

Traffic Counts

Traffic Data (see Appendix F) is summarized below in Table 2

No hourly vehicle counts for the SCL-85 freeway opposite the Camden Avenue Interchange were collected, however the maximum mainline hourly volume taken at vicinity of the Union Street Interchange which is northerly of Camden Ave. is listed to illustrate the local magnitude of the freeway volume. Included are two mid-week evening counts during January 1995 of the southbound Camden Ave. ramp which include peak volumes during each count period. The ramp meters were not operational during these count periods.

Hourly vehicle counts were collected on 2 mid-week days in November and December 1994 for southbound SCL-280 near the DeAnza Blvd. The data includes afternoon commute periods for the DeAnza Blvd. southbound on-ramp while the meter was on.

Table 2 -- Traffic Data

	SB-SCL85 Camden Ave.	SB SCL280 De Anza Blvd.
Metered Hours	Not Metered	3-6 PM
Ramp Configuration	2 lanes to 1 lane SOV	3 lanes; 2 SOV + 1 HOV
Peak On-Ramp Hour	5 - 6 PM	3 - 4 PM
Peak Mainline Hour	4:30 - 5:30 PM *	4 - 6 PM
Maximum On-Ramp Volume	464 vph	1952 vph
Maximum Mainline Volume	5255 vph *	5212 vph
Total Mainline Volume	65000 vpd	74000 vpd

* @ Union St. Interchange

1-hr CO Levels at On-ramps

The maximum observed 1-hour CO level at Site #1 was:
6.0 ppm at SCL-85 (Camden) on 11/30/94
The maximum observed 1-hour CO level at Site #2 was:
9.0 ppm at SCL-280 (DeAnza) on 01/18/95

Exhibits 4 through 6C show the 1-hr CO concentrations at these on-ramps over an 11 and 8-week study at these respective locations as a function of time-of day. Included for comparison purposes are the data from BAAQMD sites SJ4T and SJSC.

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Unless otherwise noted, the hours in the exhibits reflect an end-of-hour convention, i.e. 0800 hr means the period between 0700 and 0800 hrs. The data collected at both sites are well below State and Federal 1-hr CO Standards for **20 ppm** and **35 ppm** respectively.

This point of view illustrates the diurnal cycle of CO fluctuation; CO levels are clearly related to time-of-day. Higher CO levels appear to correspond with peak travel demand periods.

Exhibits 10 through 10B show a three-dimensional view of the 1-hour CO concentrations for the months of November 1994 through January 1995 at Site #1 (Camden). Exhibits 11 and 11A show the 3-D view between December 1994 and January 1995 at Site #2 (DeAnza).

Note the illustration of the "double-hump" characteristics of the data distribution at both sites. The Camden site depicts a higher hump in the AM peak period. This appears to reflect heavy traffic flow in the northbound direction towards San Francisco. At the DeAnza Site the distribution of the AM and PM peaks are almost equal with a tendency for the PM peak to be slightly higher. The higher values in the southbound direction would indicate traffic returning from San Francisco and other northerly locations.

A good number of the distribution characteristics are similar for the two ramp sites and the BAAQMD sites. The ramp sites generally tend to register higher in magnitude. The frequent deviations in the distribution at the ramp sites as compared to the BAAQMD sites reflects the local influence of the freeway traffic. The similarity of variation in data density on many of the days also reflects the dominant influence of the meteorological conditions throughout the San Jose basin when the traffic conditions at the freeway sites are the lowest..

8-hr CO Levels at On-ramps

The maximum observed 8-hour average CO level at Site #1 was:

3.6 ppm at SCL-85 (Camden) on 11/30/94

The maximum observed 8-hour average CO level at Site #2 was:

5.9 ppm at SCL-280 (DeAnza) on 01/18/95

Both of the above average concentration levels are well below the State and Federal 8-hour CO standard of **9 ppm.**

The above data was extracted for the calculations of the State's "Observed Maximum" computer program. The program calculated the continuous rolling 8-hour average CO concentration for the whole testing period and derived the maximum value for each of the two sites. The calculations are included in Appendix D1 through D12. Graphical representations of the 8-hr average data are compared to the two BAAQMD stations in Exhibits 7 through 9C.

As in the previous report, the 8-hour averages at Site #2 (DeAnza) in Cupertino still show higher values than that of Site #1 (Camden) in San Jose, perhaps reflective of population density and the fact that SCL-85 is a new route that has not as yet reached its maximum potential operating capacity.

Please note that the ramp meters in this study were never operational more than three of the hours in the 8-hour average. (Site #1 - Camden = Never turned on; site #2 - DeAnza = 3 hours)

Sampling Plan and OBSMAX Analysis

According to the procedure in the Caltrans Air Quality Technical Analysis Notes, (AQTAN) for planning a proper sampling program , continuous sampling from mid-November through the end of January (as per this study) can be anticipated to have a 95% probability that the season's first annual maximum 1-hour and 8-hour values would be captured.

For information only:
For the purpose of collecting background CO data, the AQTAN procedures also recommend a minimum setback distance from the existing facilities to the monitors based on average daily traffic (ADT). Those distances calculate to 630 meters at the Camden site and 940 meters at the DeAnza site, thirty to eighty times farther respectively than the actual monitor offsets. This requirement insures that the data collected is the result of a homogenous mix of source related CO with ambient CO to yield representative level of the area.

All field CO data was loaded into the OBSMAX (Observed Maximum Analysis) program (see Appendix D) which sorts and graphs 1-hour and 8-hour maxima by time of day, and calculated the probability, also by time of day, of having observed same. According to OBSMAX, the study resulted in a 95% probability of having observed the maximum values. OBSMAX also found that no "outliers" were found at the Camden site and only one outlier was found at the DeAnza site. The DeAnza outlier was not included in the analysis summary. An outlier is a collected value that does not follow the trend relationship to samples collected on either side of the time period. Frequently this occurs due to machine malfunction or an abnormal collection due to temporary local disturbance such as a motor vehicle idling nearby for an extended period of time.

COMPARISON WITH BAAQMD STATIONS

In the following comparisons extracted from the on-ramp observations and BAAQMD station data (See Appendix E), the following liberty was taken:

Rather than match hours exactly, the highest corresponding values were drawn from a time window of two to three hours before and after the occurrence of the event under evaluation. This nearly always results in some escalation of the other three values, and is done so as to allow for potential CO cloud migration, thereby painting a more conservative and yet more balanced picture of the dynamic sub-regional air mass.

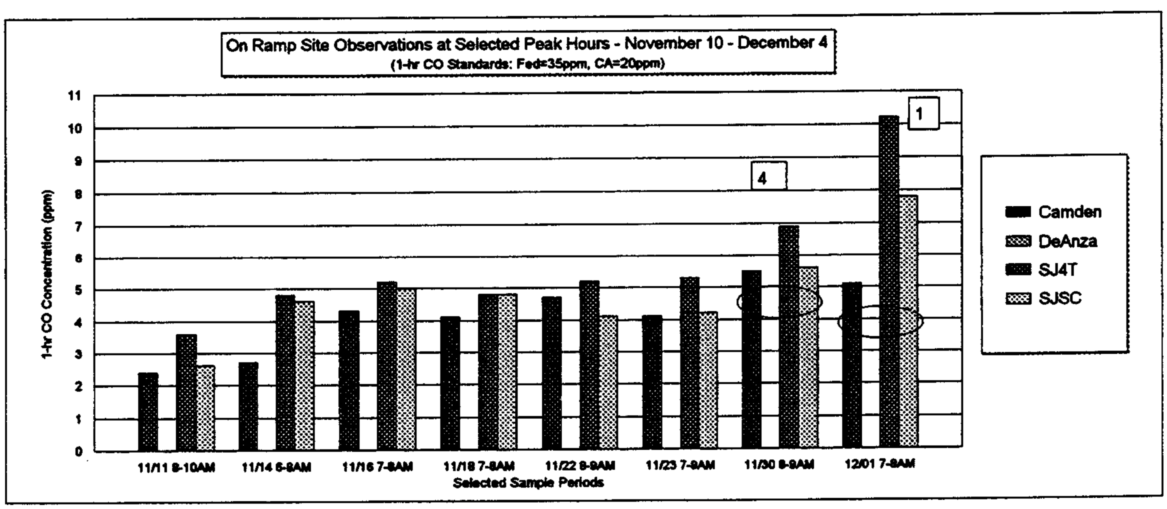
A total of 31 time periods were selected for analysis from the graphical site comparison charts of the 1-hr CO concentrations at the ramp sites and BAAQMD sites shown on Exhibits 4 through 6C.. The selection included only the data peaks that simultaneously occurred at the sites.

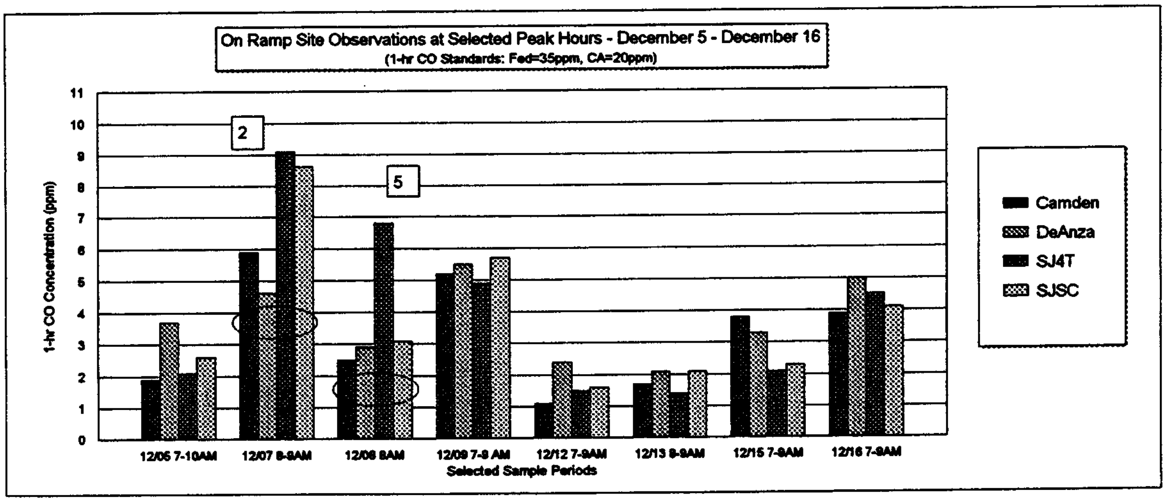
Despite their relative proximity of 4 km (2.4 miles) to each other, the two BAAQMD monitoring stations reported 1-hour CO concentrations of less than 3.7 ppm and 2.4 ppm different from each other during 2 of the 31 discrete event periods reported below. All other comparisons showed a rather good correlation with reported differences of less than 1.5 ppm.. We take this to be a reflection of the often uneven, inconsistent nature of sub-regional carbon monoxide distribution as well as possible localized microscale disturbances.

Highest On-Ramp Concentrations and Corresponding BAAQMD Station Data

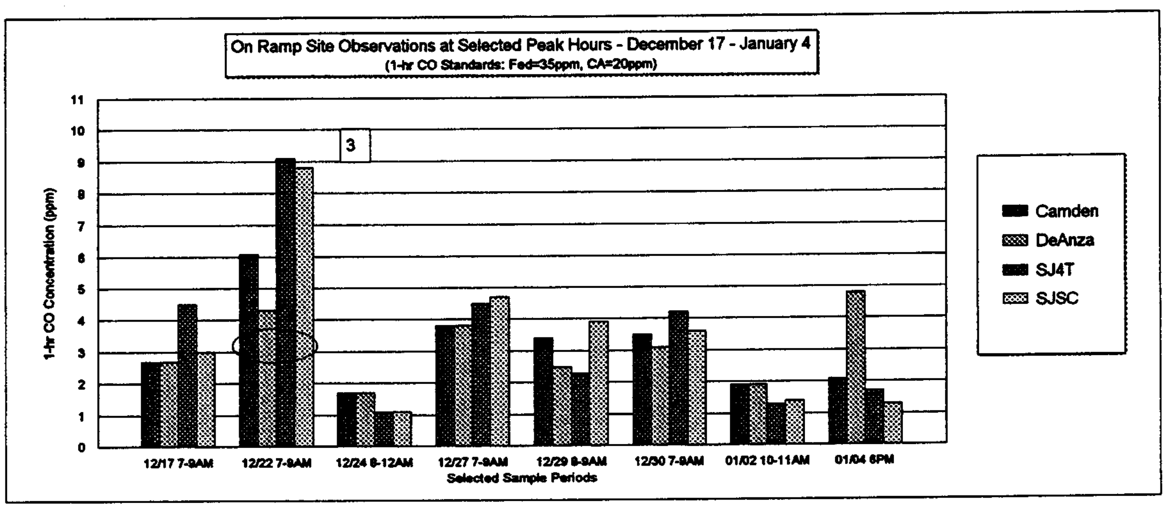
The seven highest 1-hr values that occurred at each of the sites were analyzed. The following facts are apparent from the on-ramp measurements:

- The five highest CO concentrations from all the sites but the DeAnza site occurred during the last week of November to the 3rd week of December. At the DeAnza site two observations occurred during the middle of January.
- With the exception of the DeAnza site 4 of the 5 highest values of the Camden site and the BAAQMD sites occurred on the same day and time period. (November 30 through December 22)
- All of the highest CO concentrations occurred at all sites during the morning commute periods from 7AM to 9AM.
- Although there were simultaneous peak distributions at all the sites, the DeAnza site recorded only one date and time period where one of its highest five readings occurred at the same time as two of the other three sites.

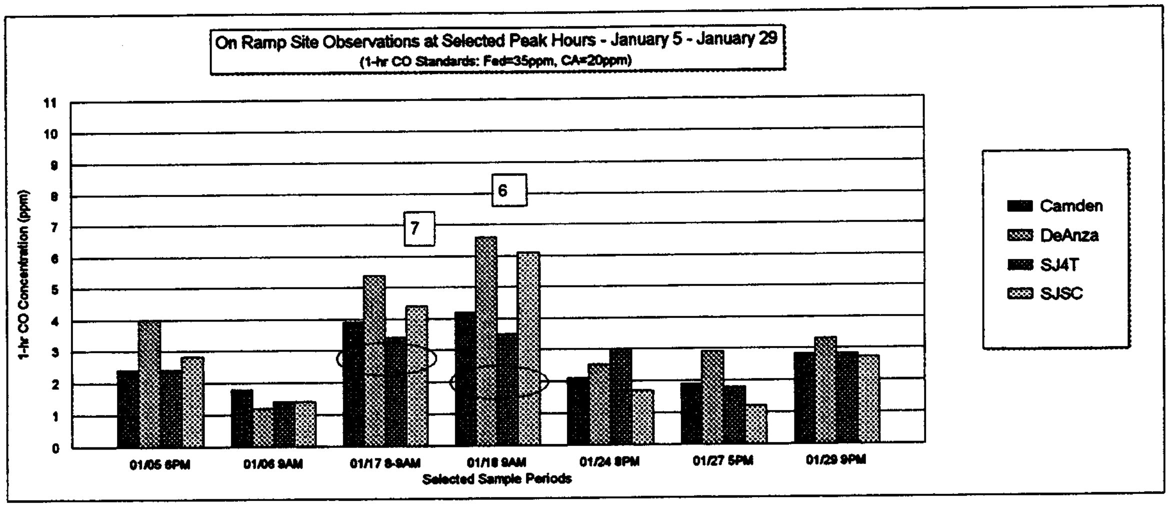




On Ramp Site Observations at Selected Peak Hours - December 5 - December 16
(1-hr CO Standards: Fed=35ppm, CA=20ppm)
1-hr CO Concentration (ppm)
Selected Sample Periods
12/05 7-10AM
12/07 8-9AM
12/08 8AM
12/09 7-8 AM
12/12 7-9AM
12/13 8-9AM
12/15 7-9AM
12/16 7-9AM
2
5
Camden
DeAnza
SJ4T
SJSC



On Ramp Site Observations at Selected Peak Hours - December 17 - January 4
(1-hr CO Standards: Fed=35ppm, CA=20ppm)
1-hr CO Concentration (ppm)
Selected Sample Periods
12/17 7-9AM
12/22 7-9AM
12/24 8-12AM
12/27 7-9AM
12/29 8-9AM
12/30 7-9AM
01/02 10-11AM
01/04 6PM
3
Camden
DeAnza
SJ4T
SJSC



General On-Ramp / BAAQMD Correlation Observations

Between the seven discrete CO event periods evaluated, the highest three levels which were recorded on Thursday December 1, 1994, Wednesday December 7, 1994 and Thursday December 22, 1994) showed good correlation at the Camden site when compared with the BAAQMD sites. These values occurred between 7 AM and 9 AM. The Camden site recorded concentrations of 6.1 to 5.1 ppm and the BAAQMD sites had ranges of 10.2 to 8.8 ppm.

The highest level observed at the DeAnza site coincided only with the sixth ranked CO concentration level of the SJSC BAAQMD site. The remaining values at the DeAnza site did not compare with any of the top seven ranking BAAQMD sites. The DeAnza site recorded concentrations of 6.6 to 4.8.

The Camden and DeAnza on ramp values are roughly half that of the BAAQMD sites. Only the Camden site correlates with the variations recorded at the BAAQMD sites. The DeAnza site shows daily distribution variations similar to the other sites with frequent independent peaks that significantly exceed the ambient values of the area. This indicates that the ramp is subject to a combination of traffic and metering fluctuations that produce localized concentrations higher than the general area.

CONCLUSIONS

Based on November 1994 through January 1995 BAAQMD sites SJSC & SJ4T, mid November 1994 through January 1995 for the Camden on-ramp site and December 1994 through January 1995 for the DeAnza on-ramp site, it is reasonable to conclude that this investigation spanned the peak of the winter 1994-1995 CO season, which appears to have occurred during the first half of December 1994.

In 12 weeks of continuous CO concentration monitoring during the winter CO season directly adjacent to two ramp meters feeding on-ramp traffic onto stretches of freeway in the highest CO background concentration sub-region in the San Francisco Bay Area, **no violations of either the State or Federal 1-hour or 8-hour CO standards were observed.**

Moreover, the margin between the field data and any of the standards was never less than 10 ppm for 1-hour CO levels and 3 ppm for 8-hour concentration levels. This buffer is large enough that one could add the difference between the ramp site and the monitoring station isopleth values to the observed on-ramp data and <u>still</u> not violate any state or federal CO standard. **All other factors being equal, this realization allows the conclusions of this study to reasonably apply to <u>all</u> locations in the San Francisco Bay Area, even those in downtown San Jose.**

While there is clearly a relationship between peak driving periods and monitored CO concentration levels, the site data indicate that CO concentrations adjacent to ramp meters will not exceed the state or federal CO standards.

It is important to note that to some degree, one would expect lower monitoring results than one would obtain through modeling, assuming a valid model existed, because of the worst-case, non-probabilistic orientation of current air quality practice, and limited number of sites and limited duration of our study.

In a way, this observation serves as cause to question the scientific validity of current concern with the microscale CO impacts of freeway projects in general; one would be hard pressed to find a site which, according to what we both know and presume about vehicle emissions, would be worse for local CO levels than the SCL-280 DeAnza Boulevard on-ramp by a significant enough margin to overwhelm the margin of safety we observed.

With respect to BAAQMD data, there appears to be a clear relationship between CO concentrations measured at on-ramps and CO concentrations measured at BAAQMD monitoring stations, with a bias toward the BAAQMD monitoring stations being higher. In short, the data collected in this study would suggest air quality can easily be worse in downtown San Jose during commute periods that at any time next to freeway on-ramps, metered or not.

IMPLEMENTATION

It is recommended that this report be distributed as an informational document and as a supplement to the first report dated May 20, 1994 to Caltrans' transportation partner agencies and members of the public who have expressed concern over possible air quality impacts of ramp metering. It is important to remember that although the conclusions were based on limited data taken at only three sites during the two year testing and analysis period, these sites were in the San Francisco Bay Area's highest background CO concentration sub-region, traffic was heavily congested at two of the three sites along with the attendant high traffic volumes, and the data was collected during the height of the CO season.

It is recommended that -- in conjunction with a separate analysis of the presumable beneficial effects of ramp metering on mainline CO emissions totals -- this study be accepted by Caltrans' Transportation partner agencies as adequate in showing that all exclusively ramp metering projects and all ramp metering elements contained in more broadly scoped projects categorically satisfy the localized CO violations requirements o the Federal Clean Air Act as Amended, the EPA's Final Conformity Rule, and MTC Resolution 2270.

Exhibit 1 -- Location Map in San Jose Area

Base map dated 12/92 Courtesy of the California State Auto Association

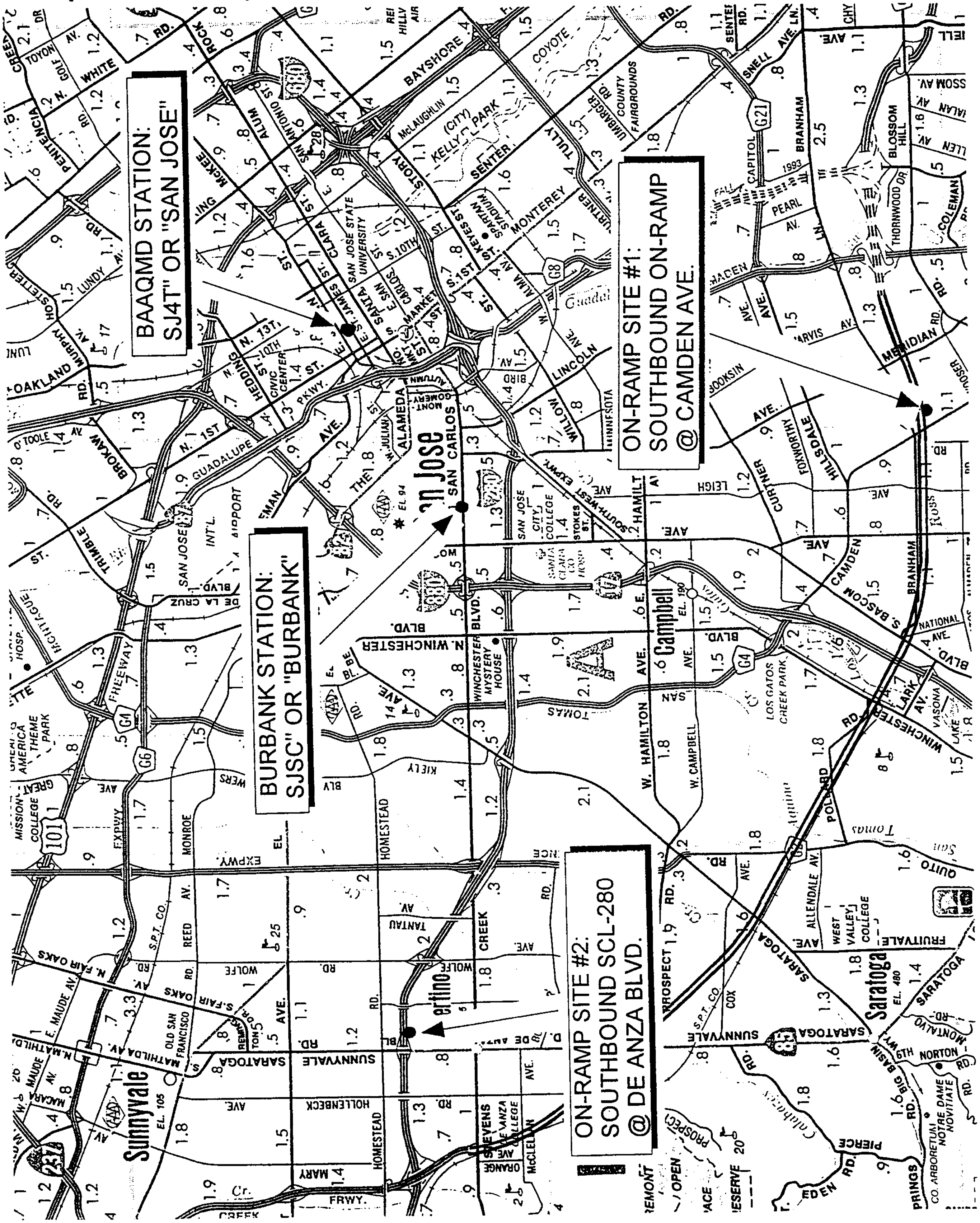


Exhibit 2 -- Aerial Photo of SCL-85/Camden Avenue Site #001

Base photograph dated 7/14/94

On -ramp metering equipment was not yet installed and operational

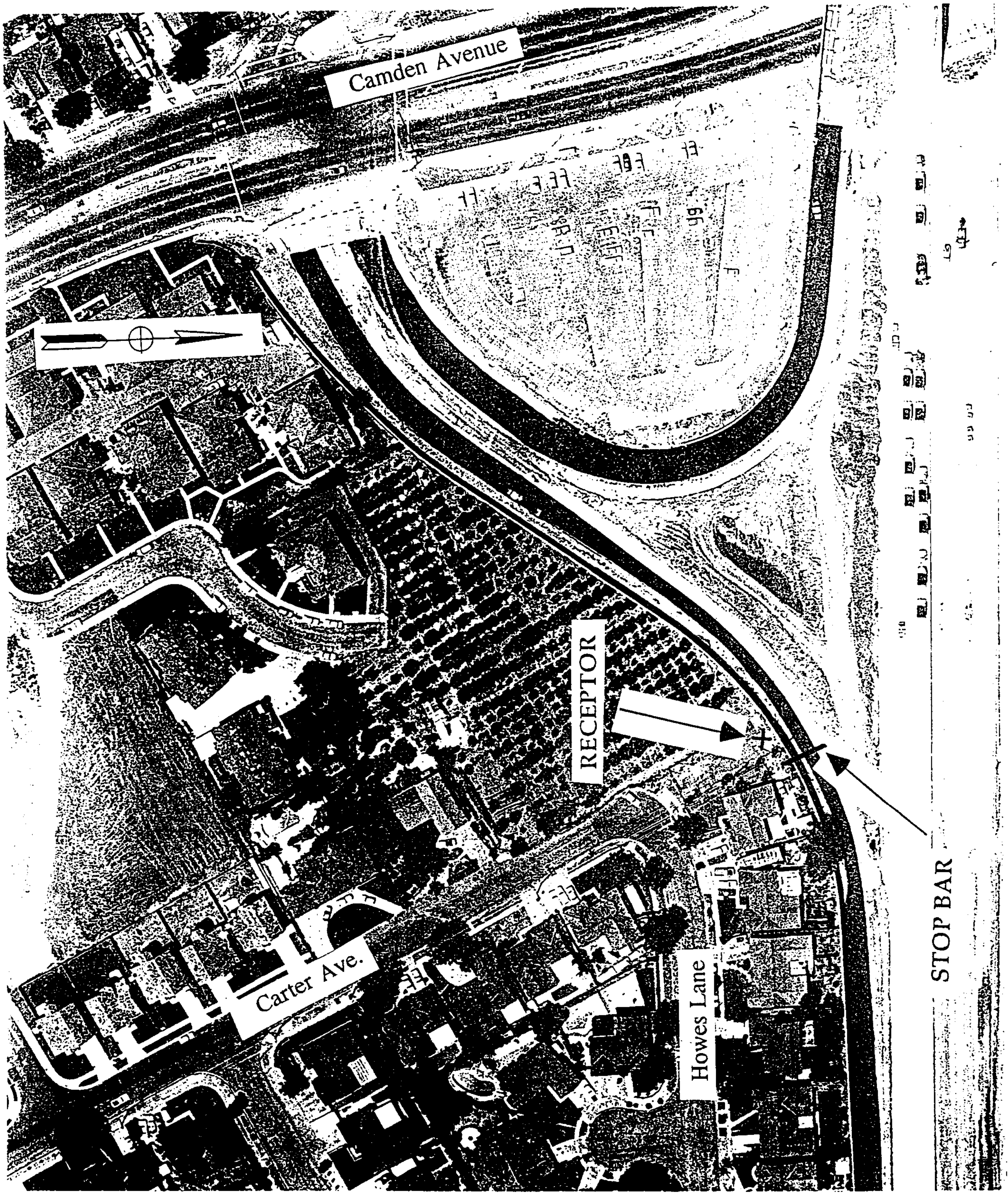
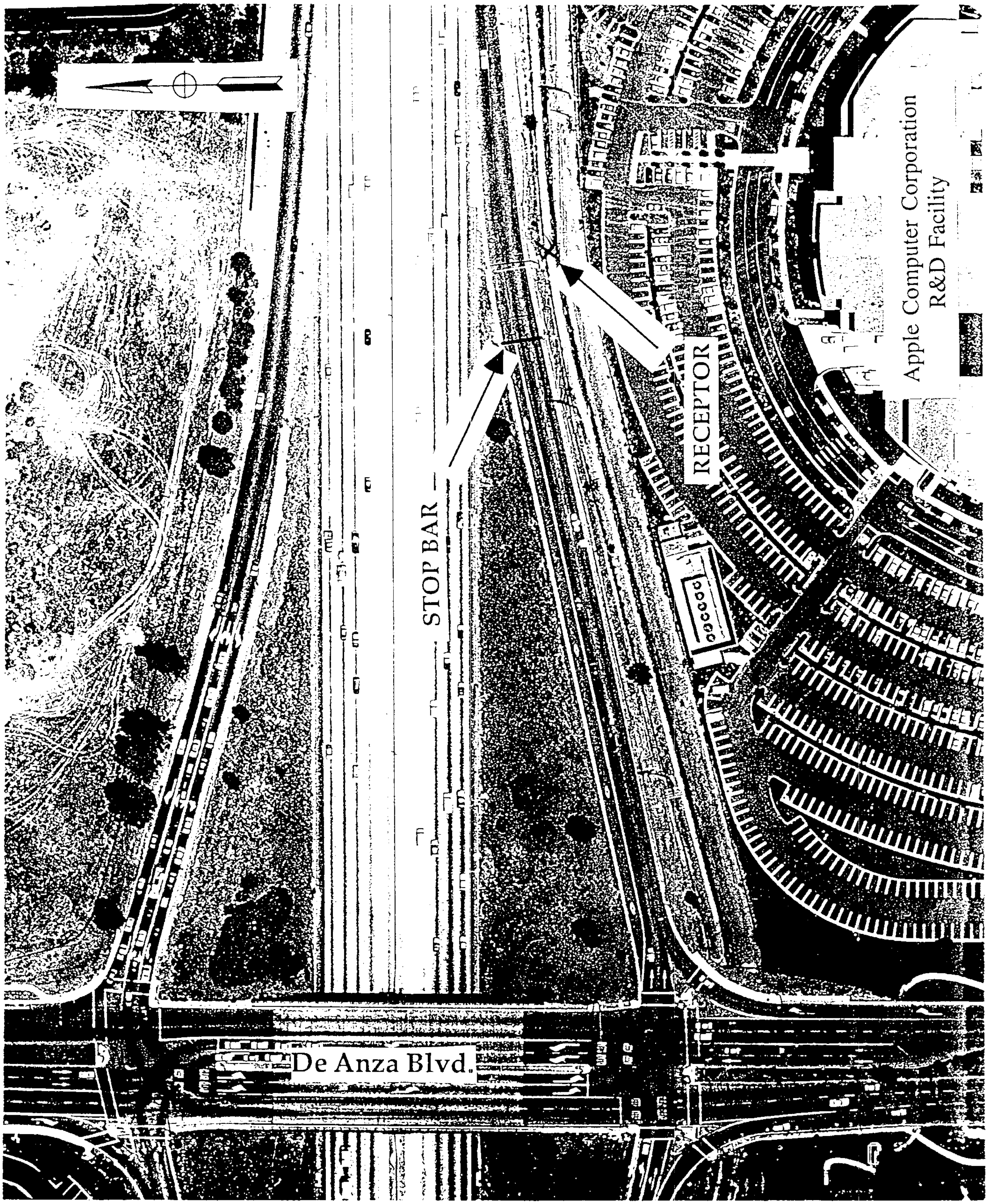
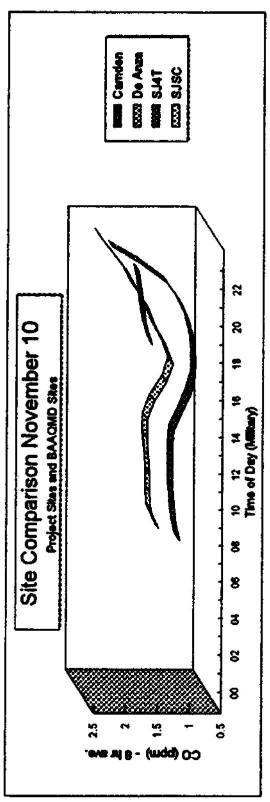
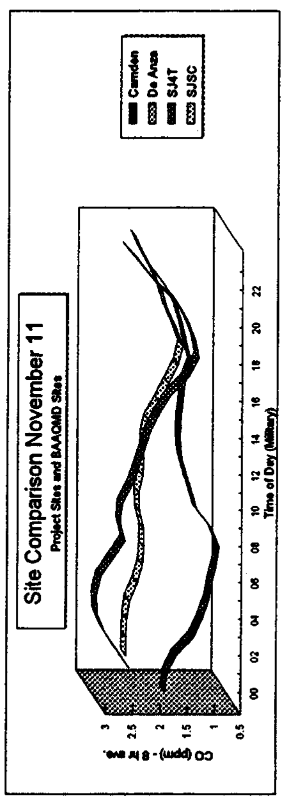


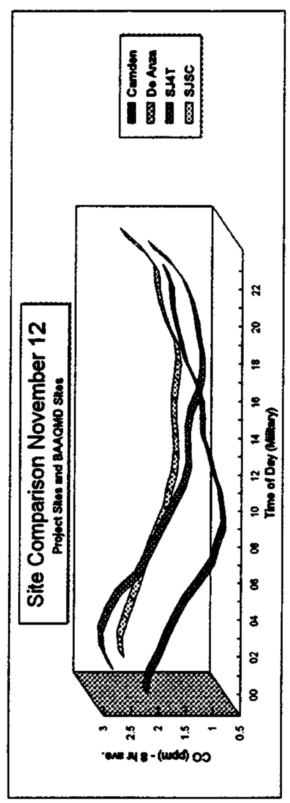
Exhibit 3-- Aerial Photo of SCL-280/De Anza Boulevard Site #002

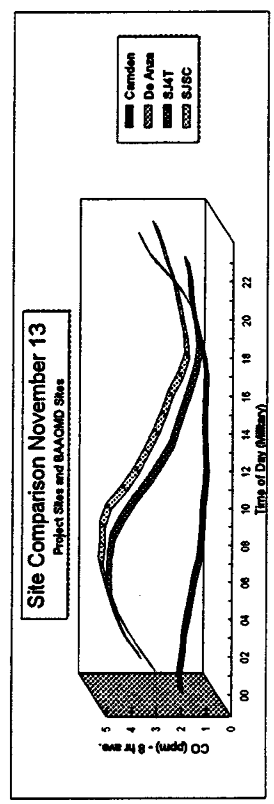
Base photograph dated 7/15/94

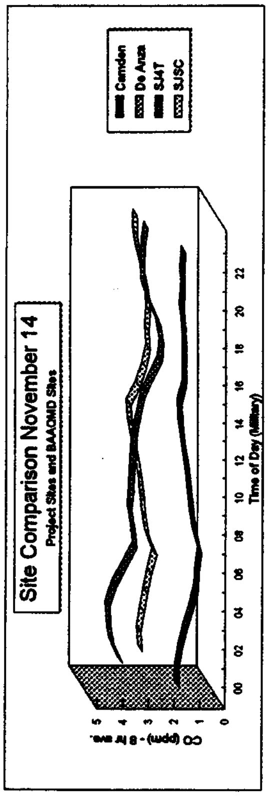


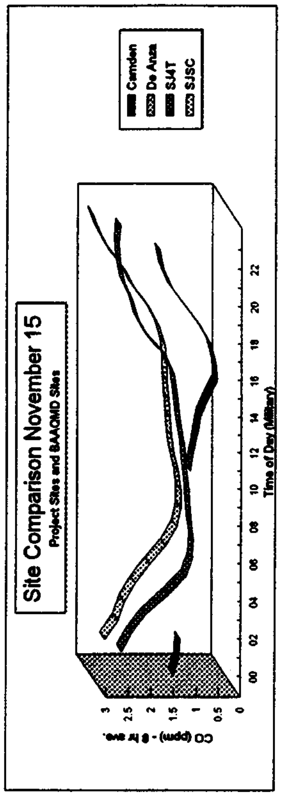


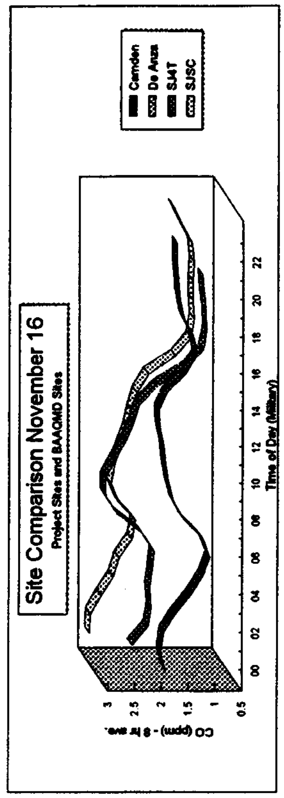


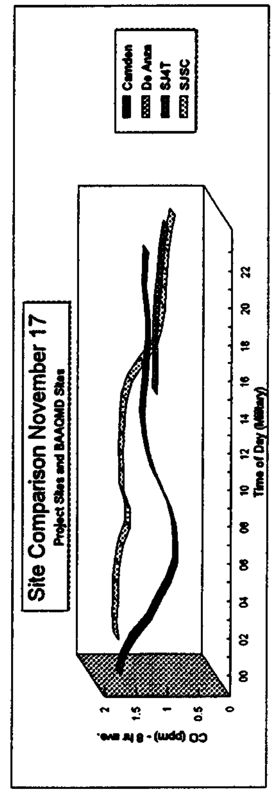








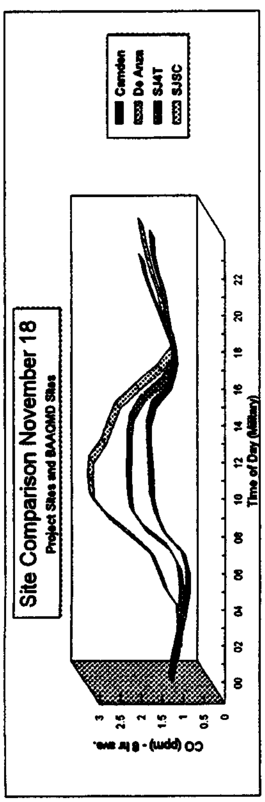


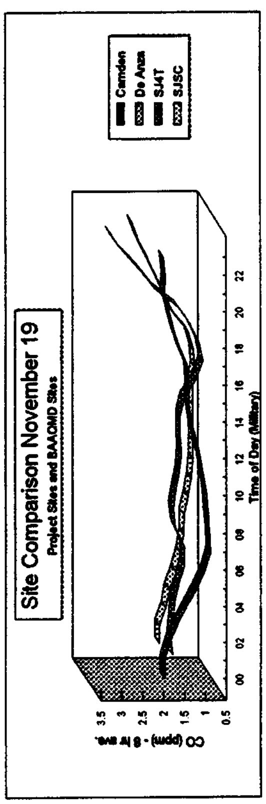


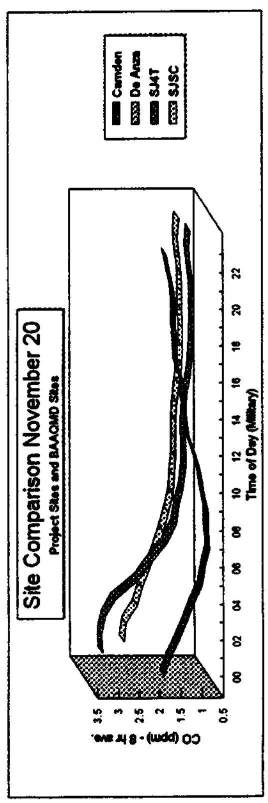
Note: Full size graphs are available upon request. See Appendix I for Sample

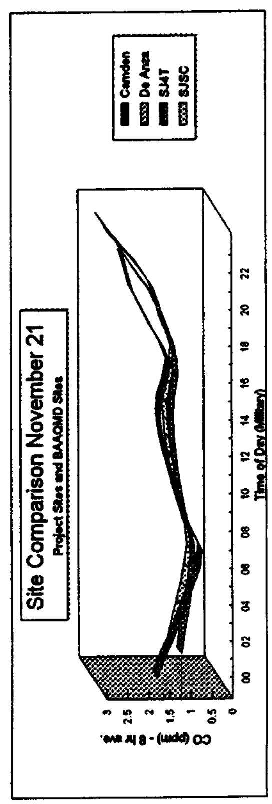
Site Comparisons - Hourly Averages

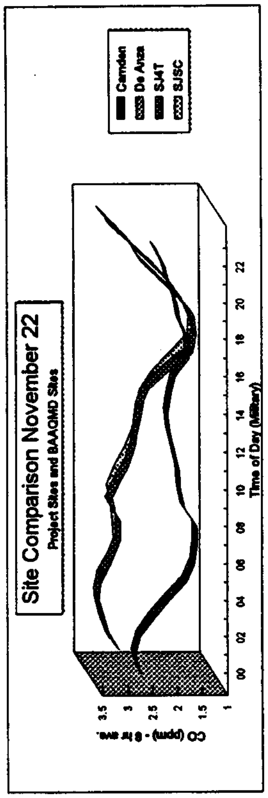
Exhibit 4A

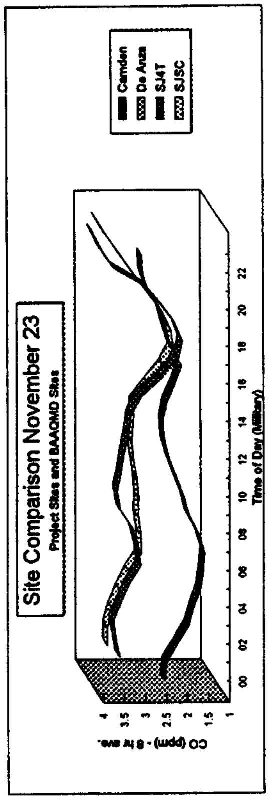


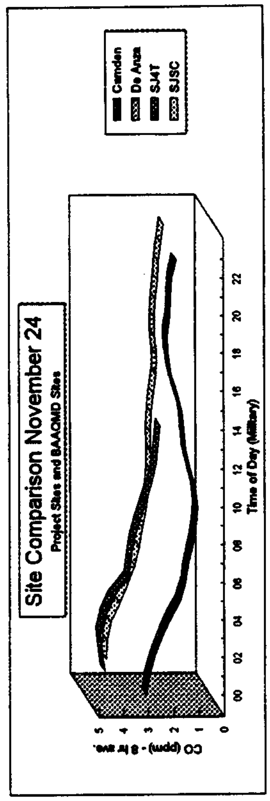


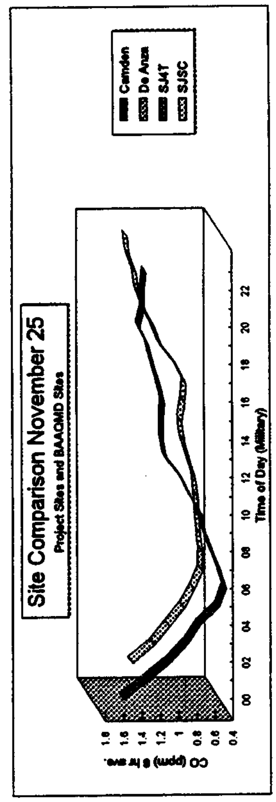




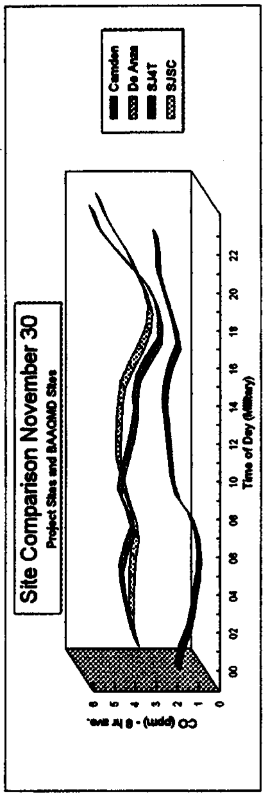


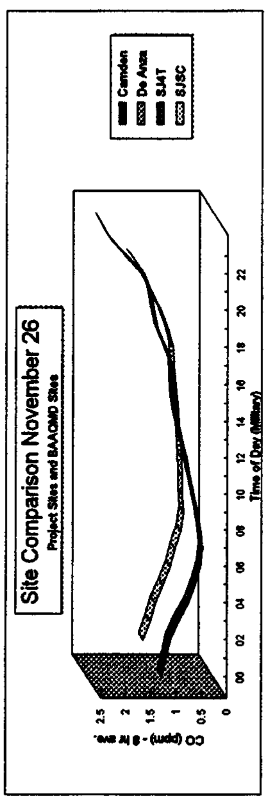


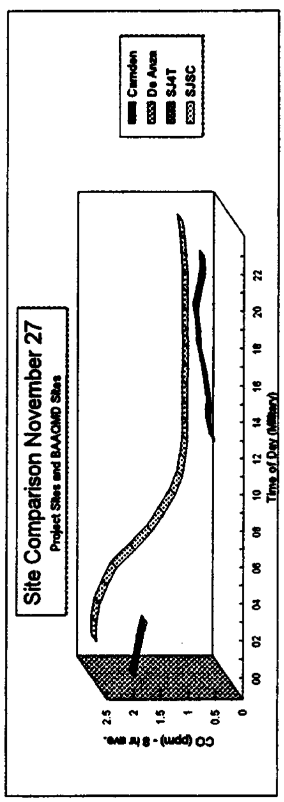


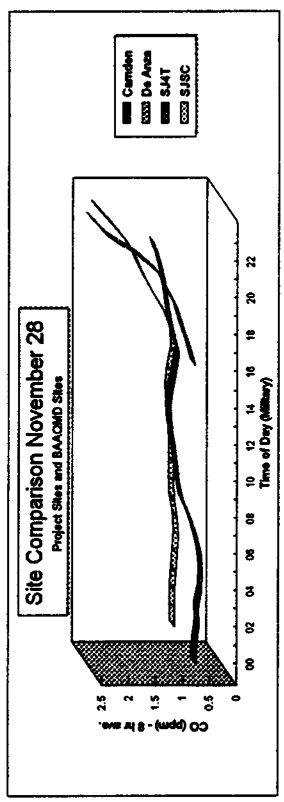


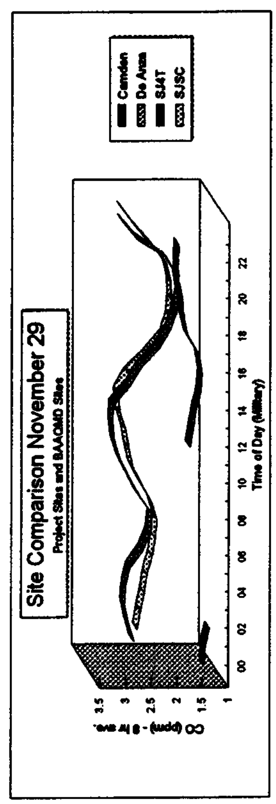
Note: Full size graphs are available upon request. See Appendix I for Sample







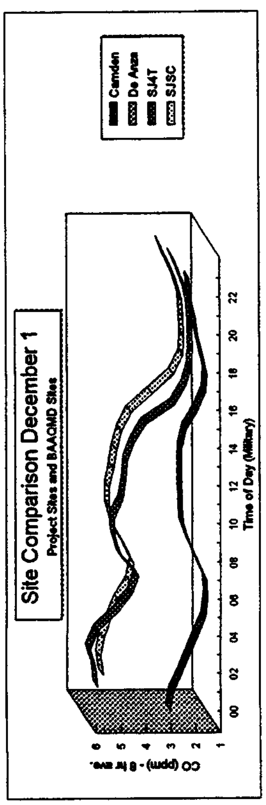


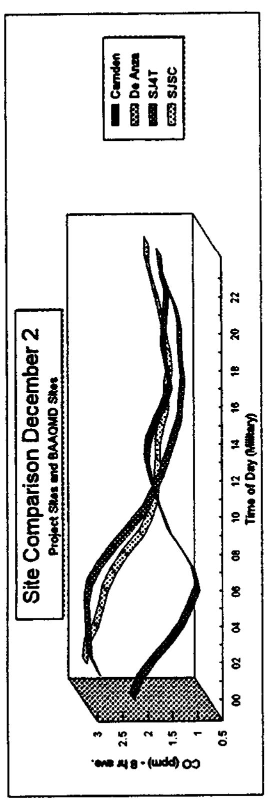


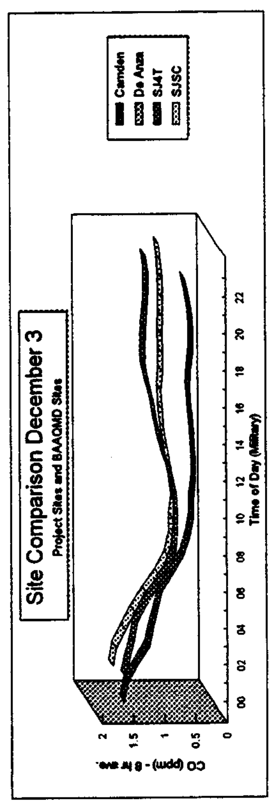
Note: Full size graphs are available upon request. See Appendix I for Sample

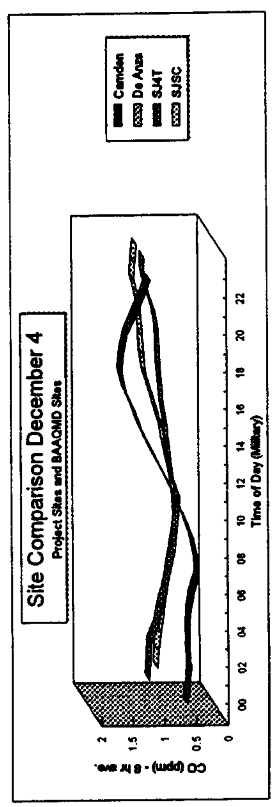
Site Comparisons - Hourly Averages

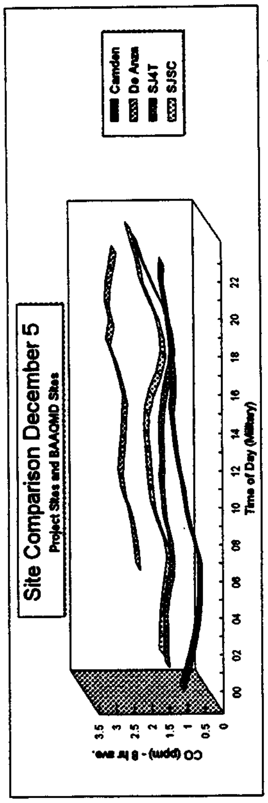
Exhibit 5

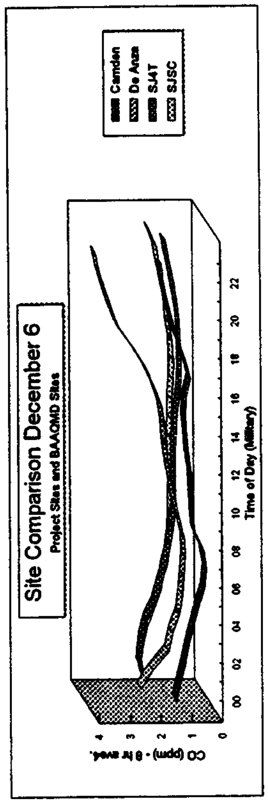


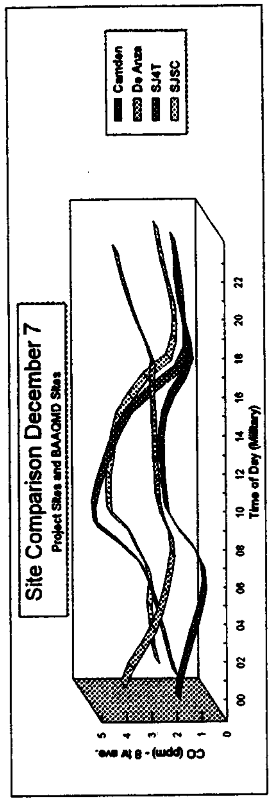


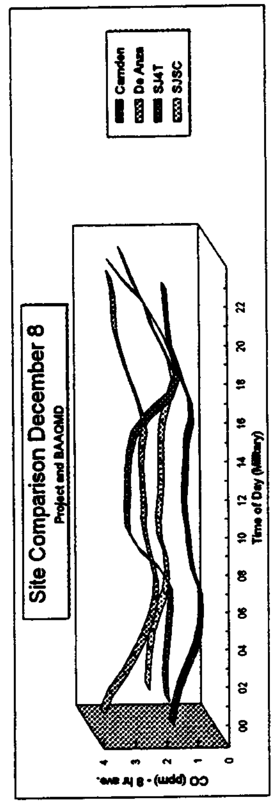








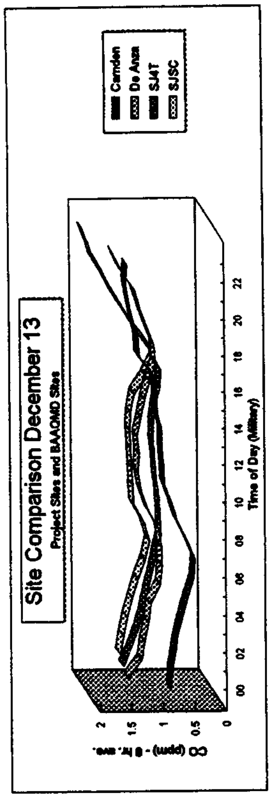


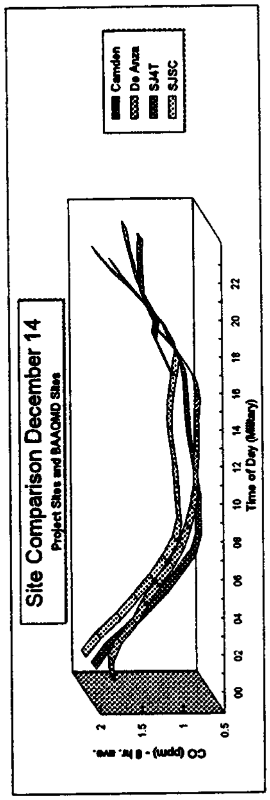


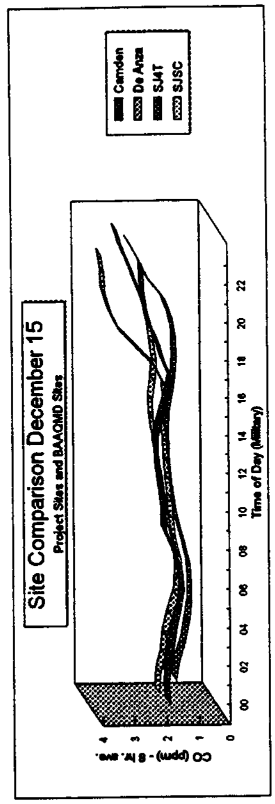
Note: Full size graphs are available upon request. See Appendix I for Sample

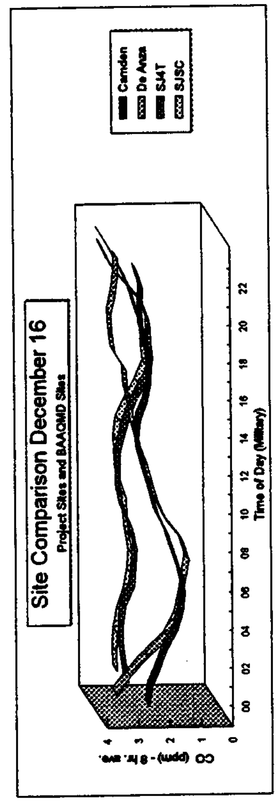
Site Comparisons - Hourly Averages

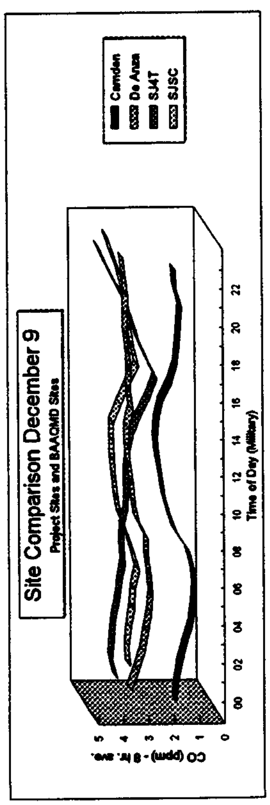
Exhibit 5A

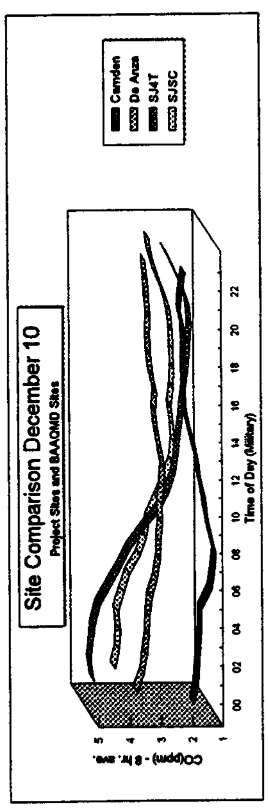


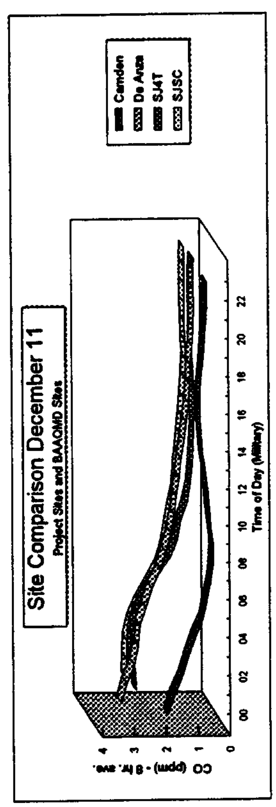


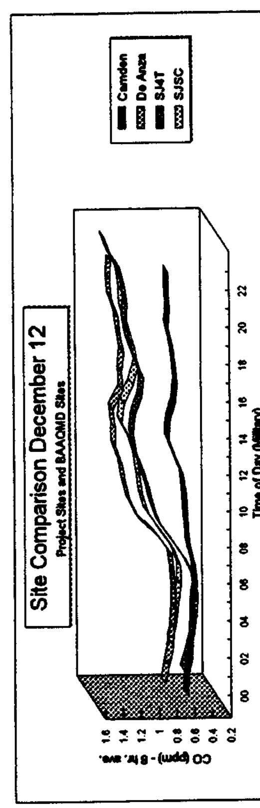








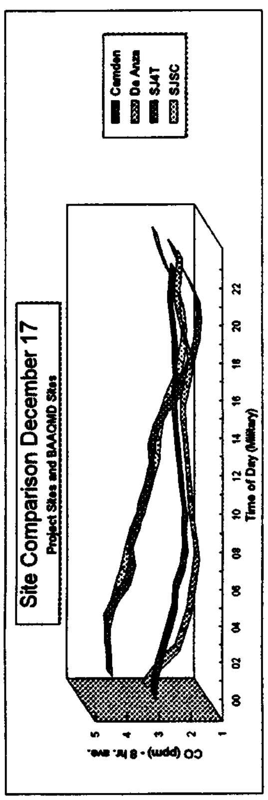


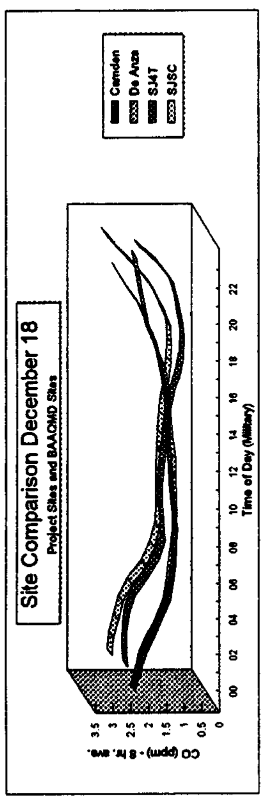


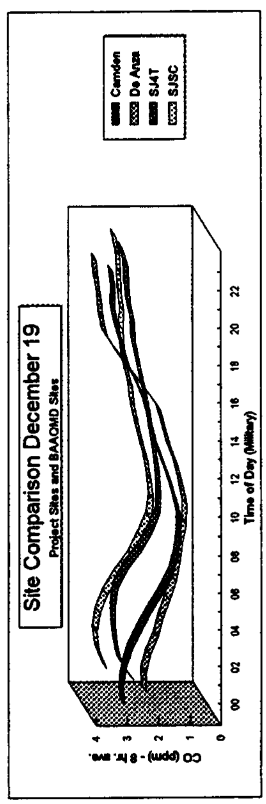
Note: Full size graphs are available upon request. See Appendix I for Sample

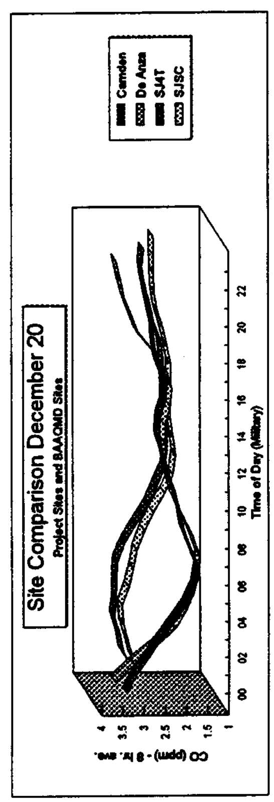
Site Comparisons - Hourly Averages

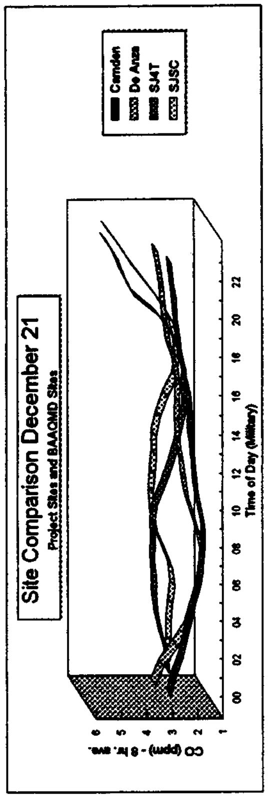
Exhibit 5B

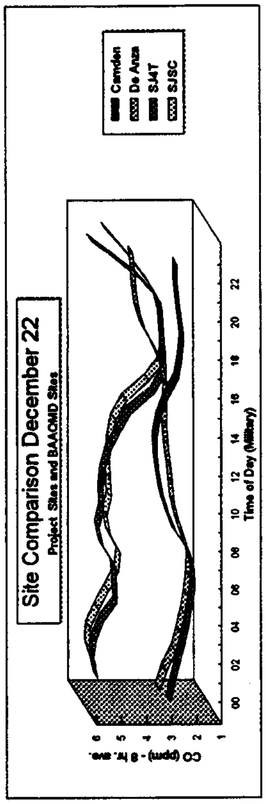


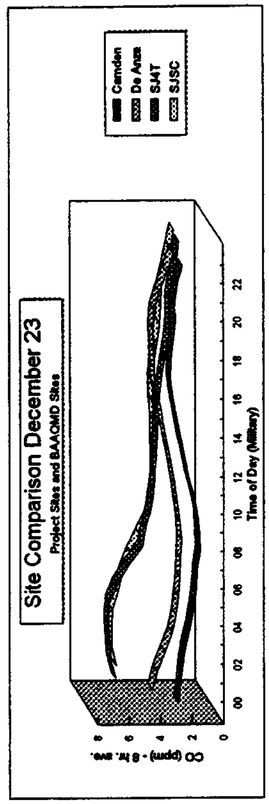


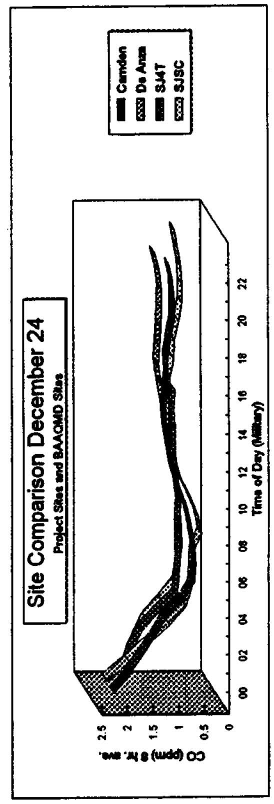




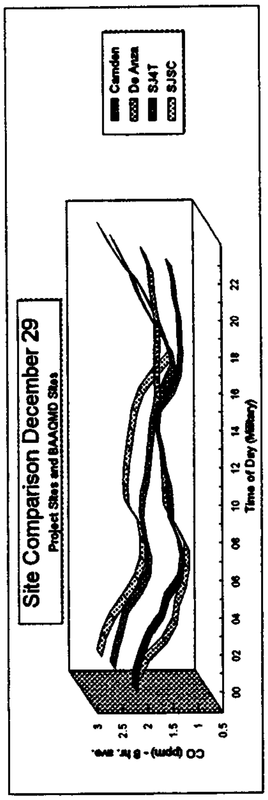


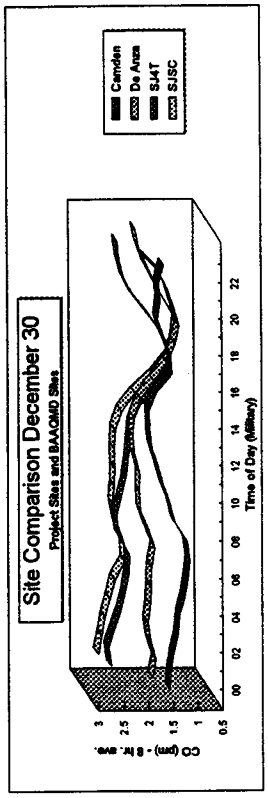


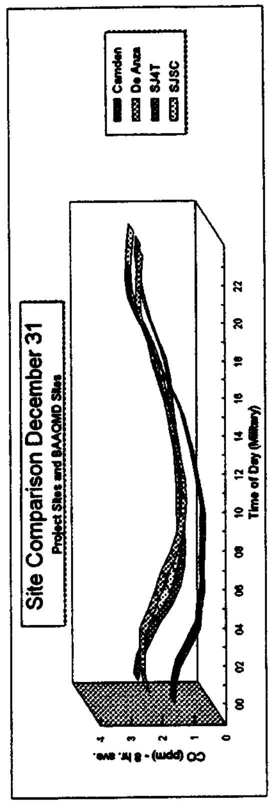


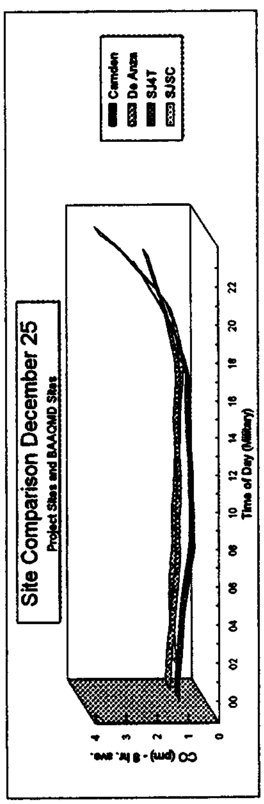


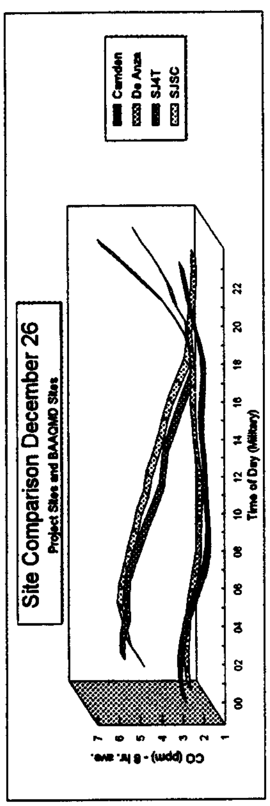
Note: Full size graphs are available upon request. See Appendix I for Sample

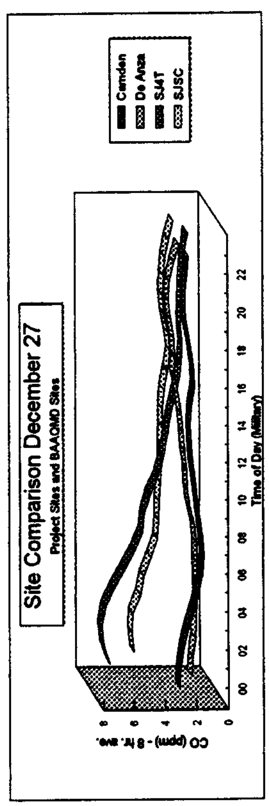


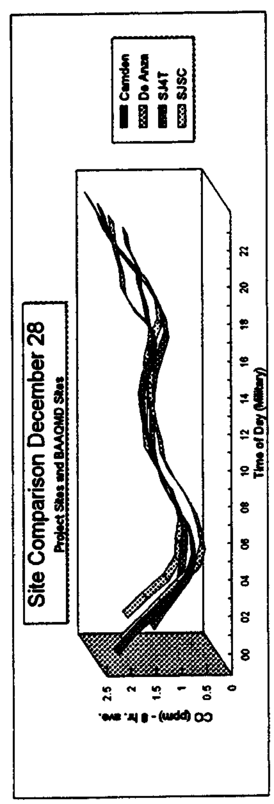








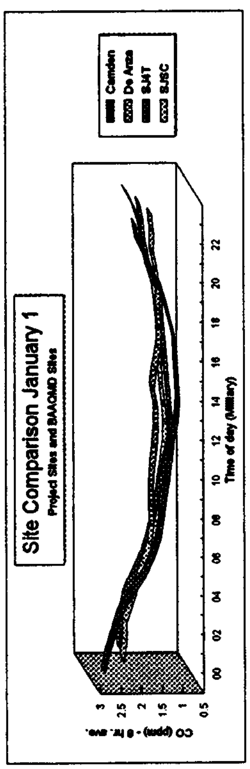


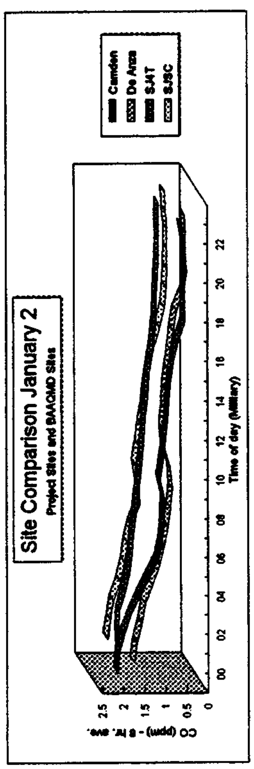


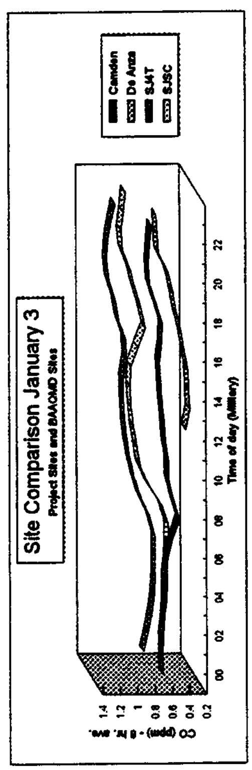
Note: Full size graphs are available upon request. See Appendix I for Sample

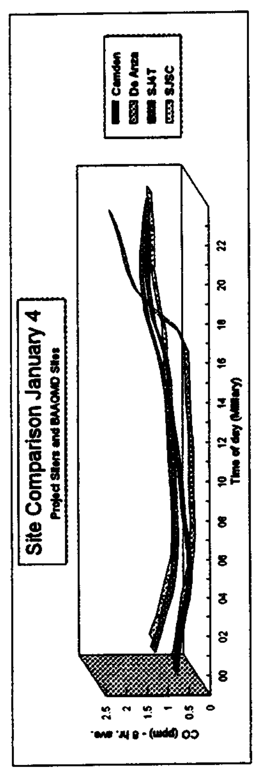
Site Comparisons - Hourly Averages

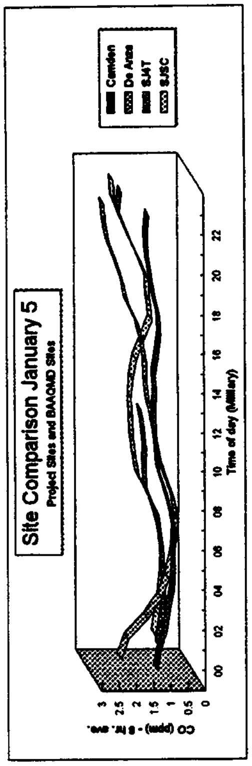
Exhibit 6

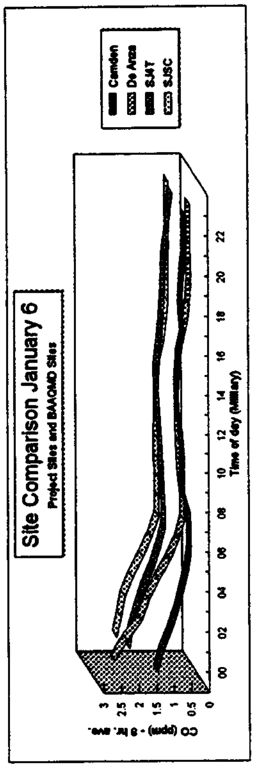


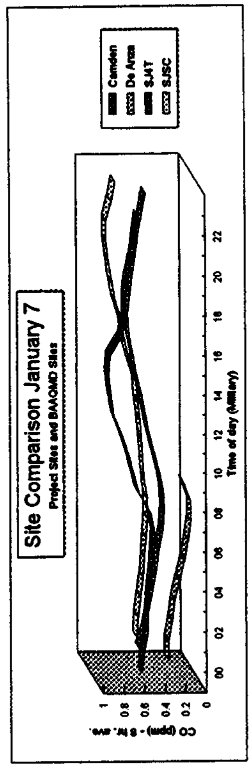


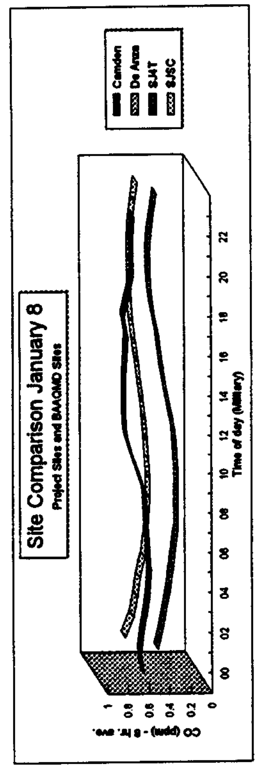








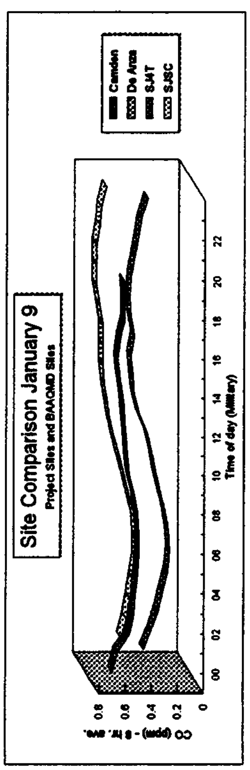


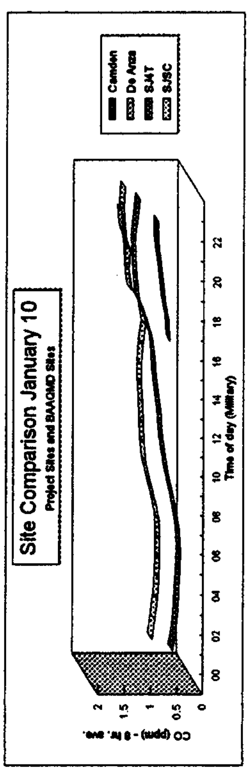


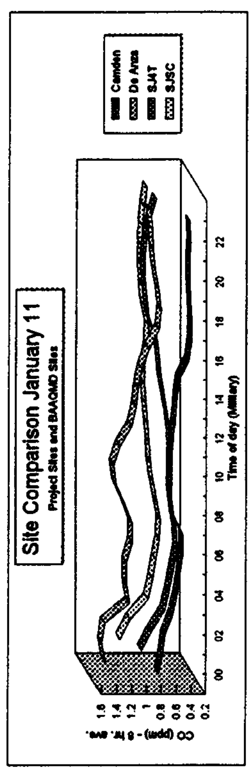
Note: Full size graphs are available upon request. See Appendix I for Sample

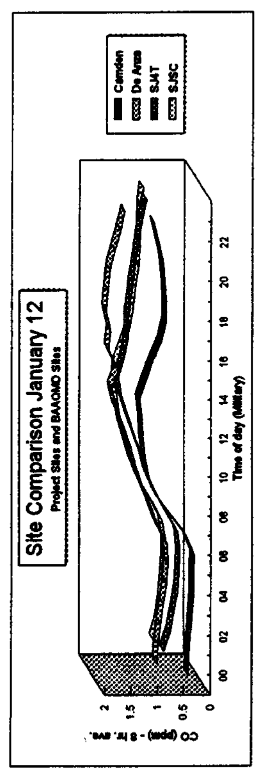
Site Comnparisons - Hourly Averages

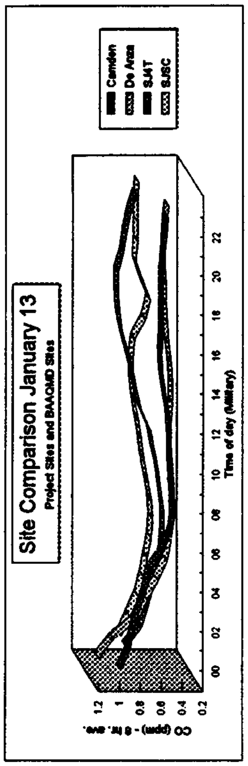
Exhibit 6A

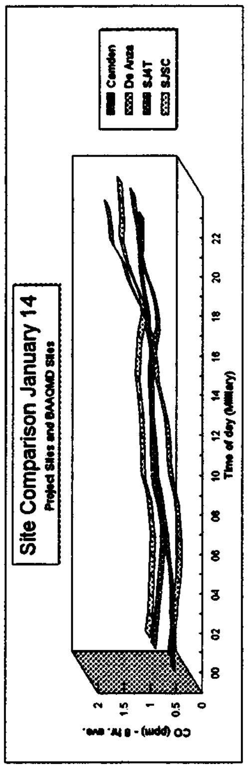


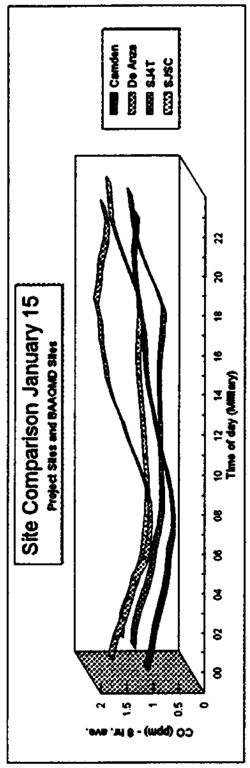


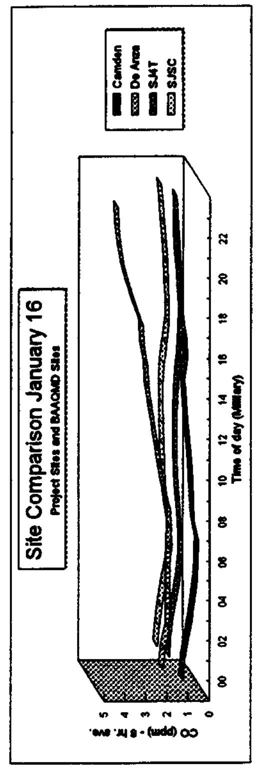








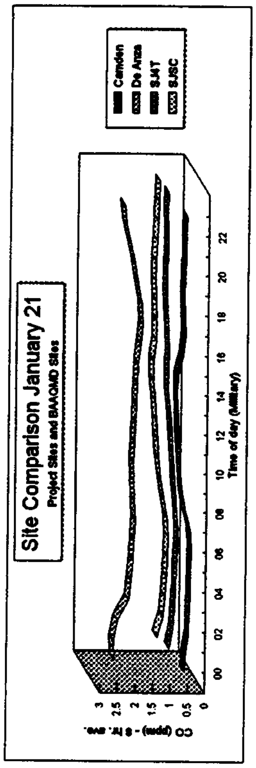


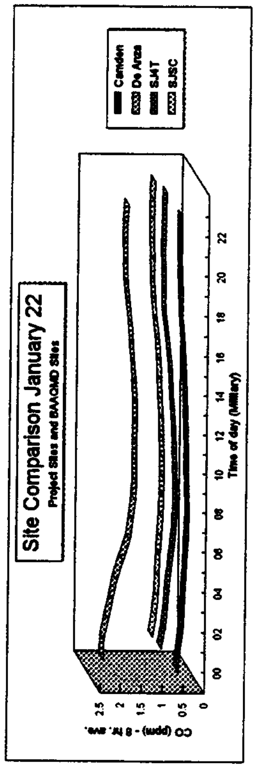


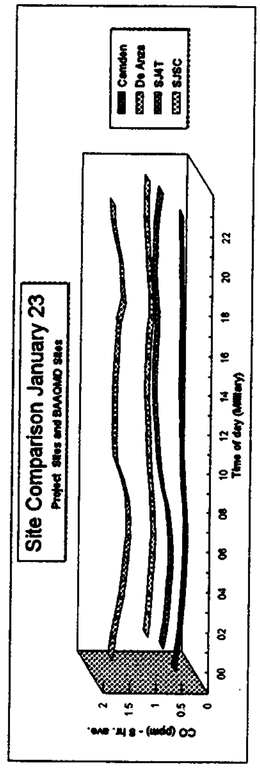
Note: Full size graphs are available upon request. See Appendix I for Sample

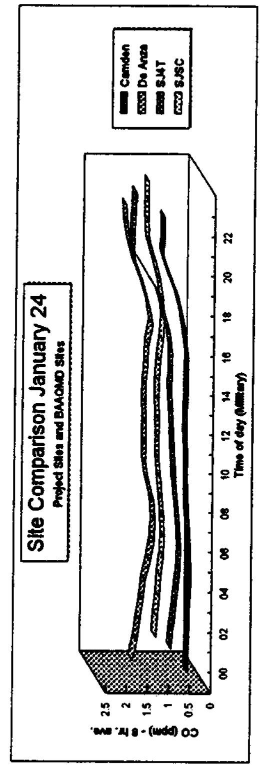
Site Comparisons - Hourly Averages

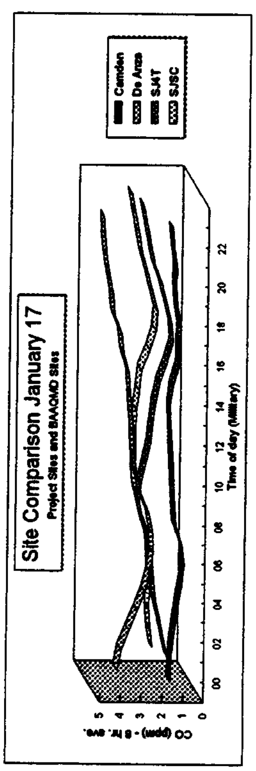
Exhibit 6B

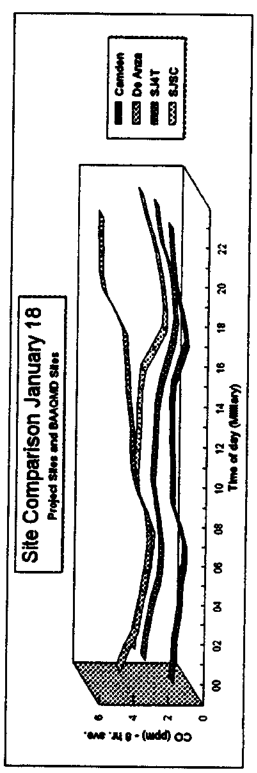


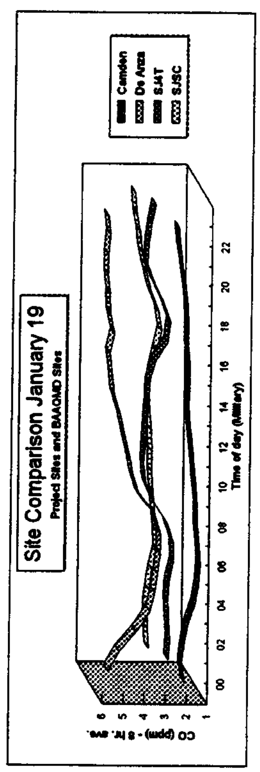


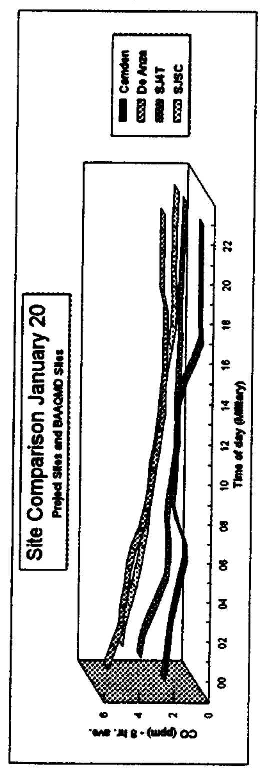




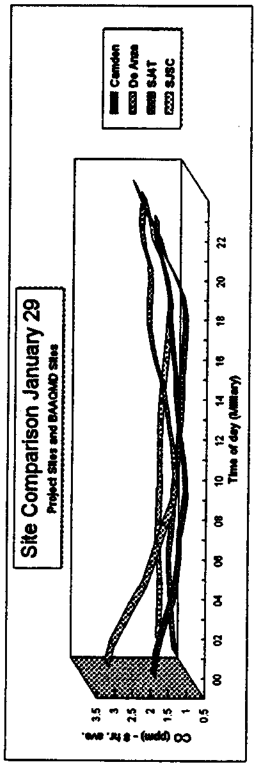


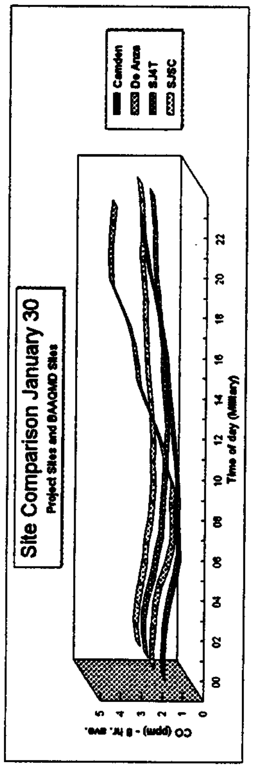


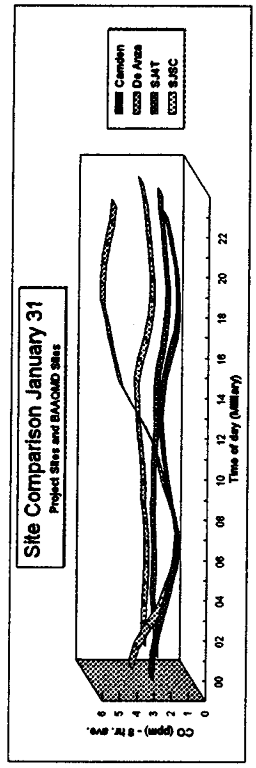


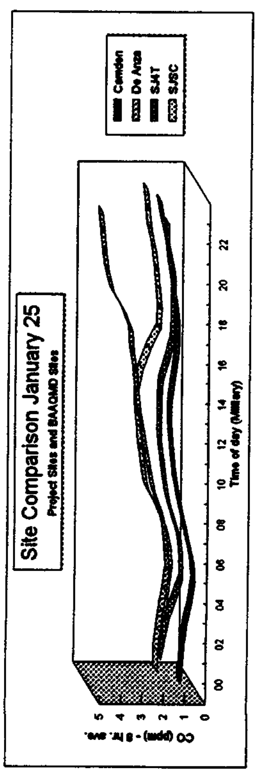


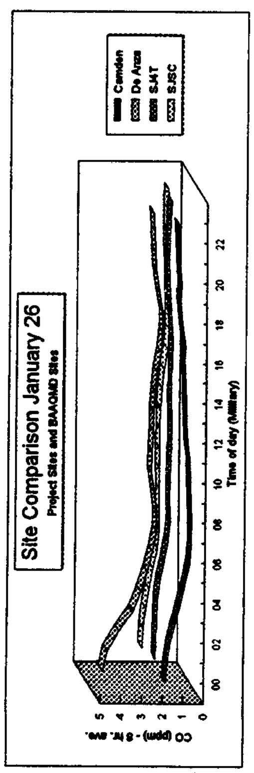
Note: Full size graphs are available upon request. See Appendix I for Sample

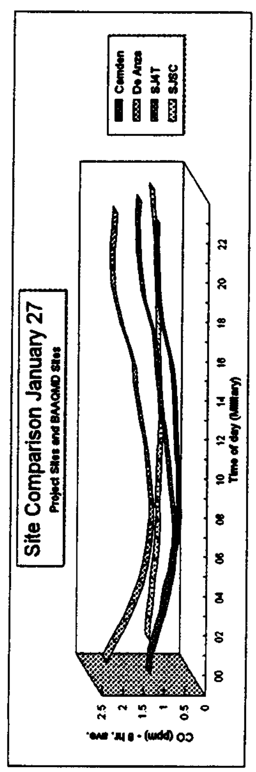


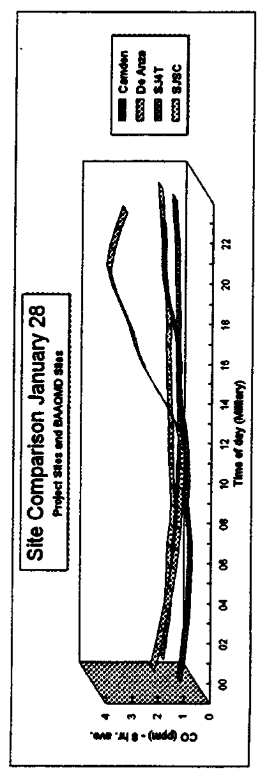






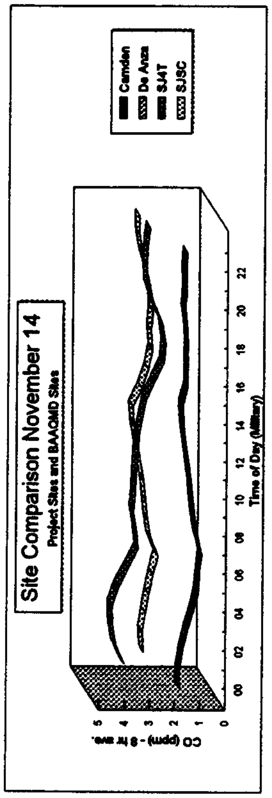


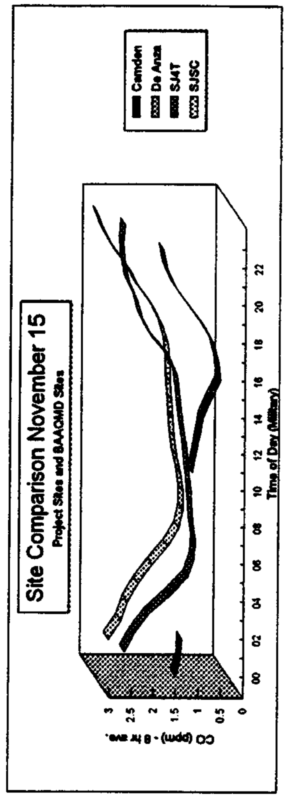


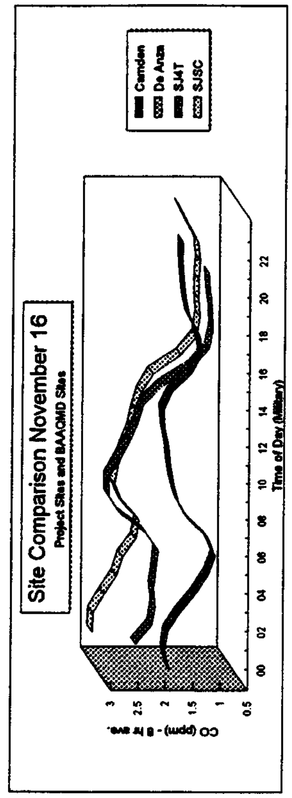


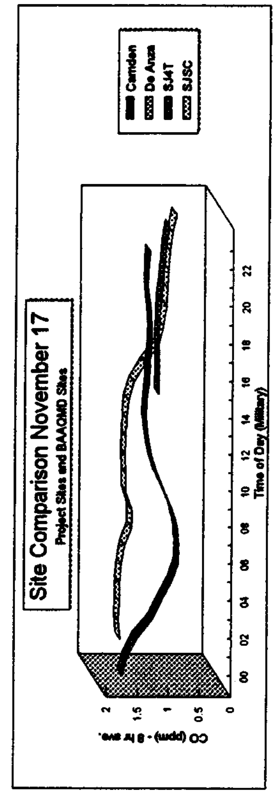
Note: Full size graphs are available upon request. See Appendix I for Sample

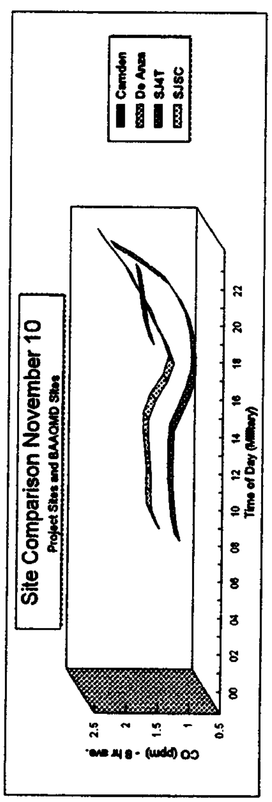
Site Comparisons - 8 Hour Averages **Exhibit 7**

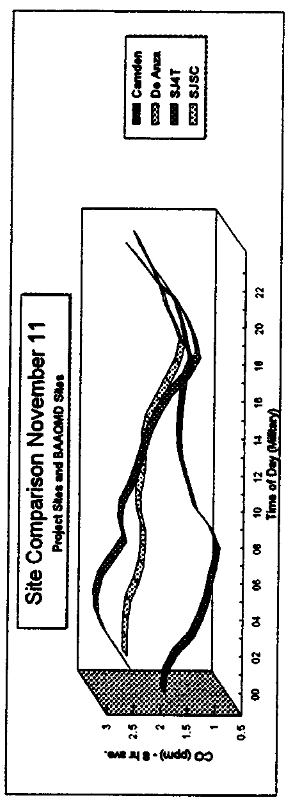


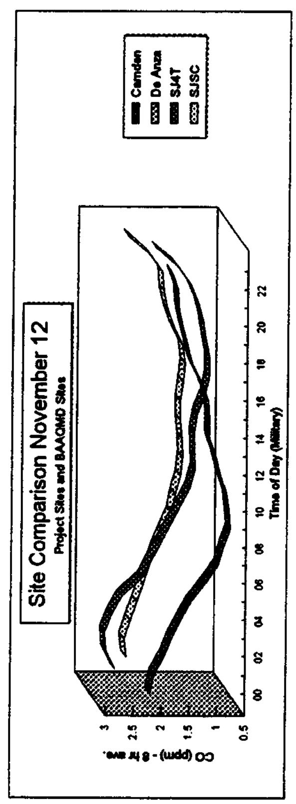


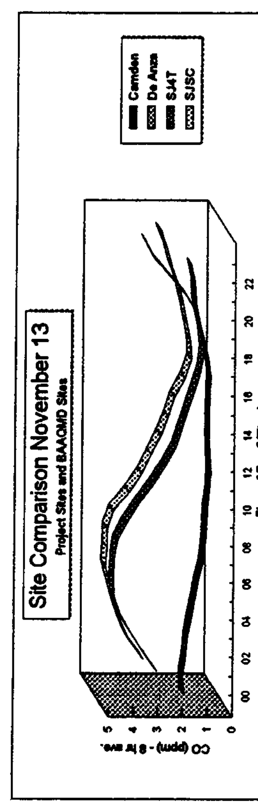




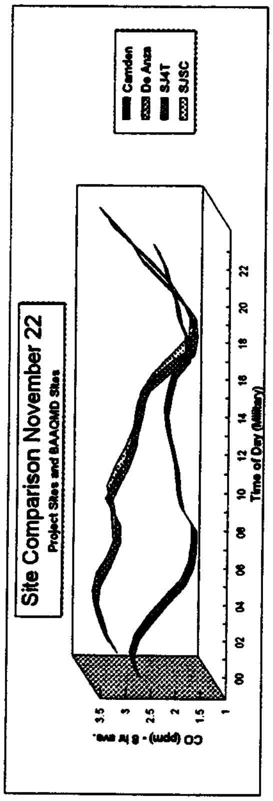


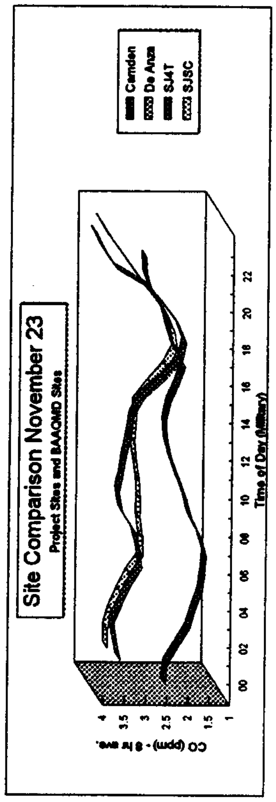


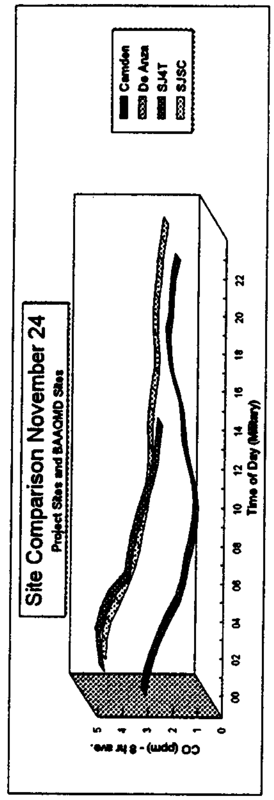


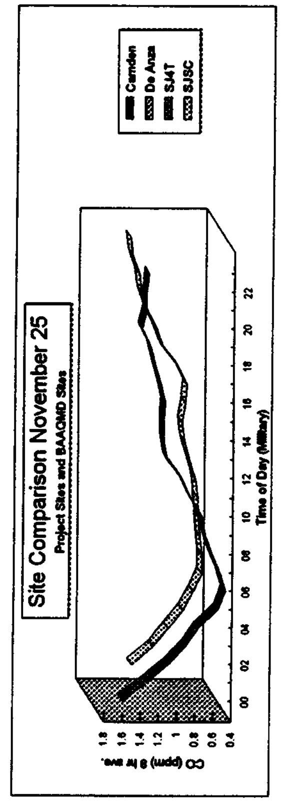


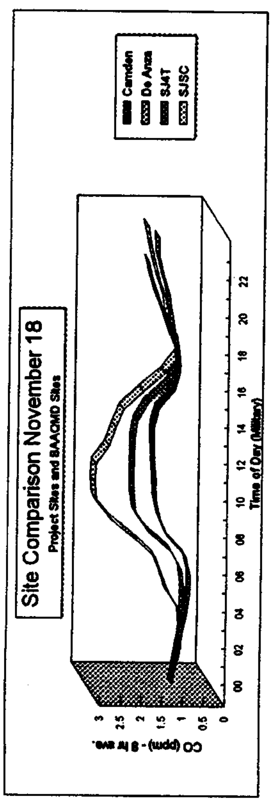
Note: Full size graphs are available upon request. See Appendix I for Sample

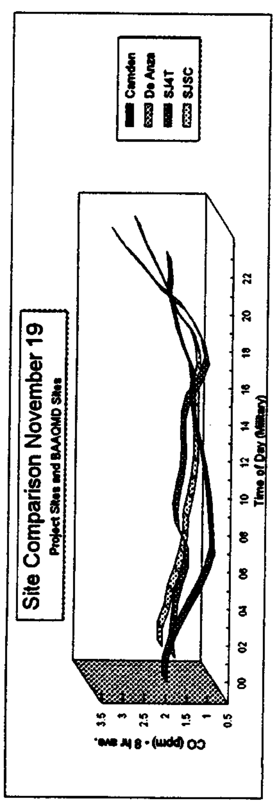


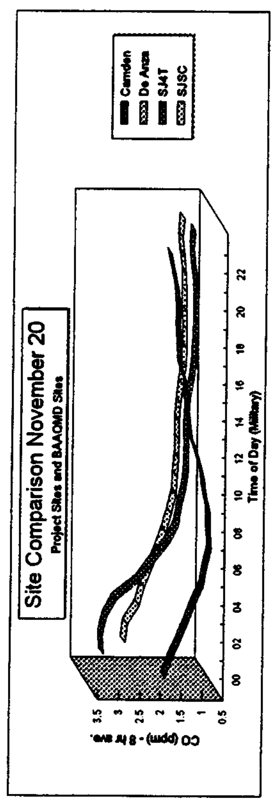


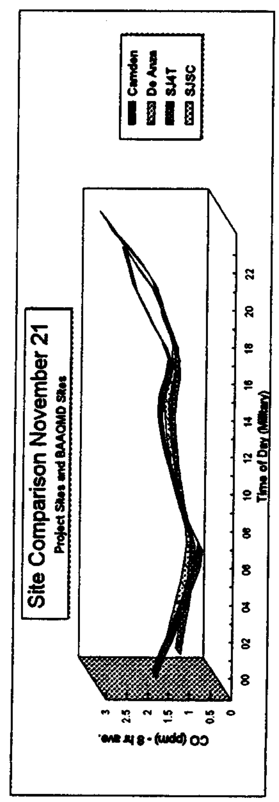




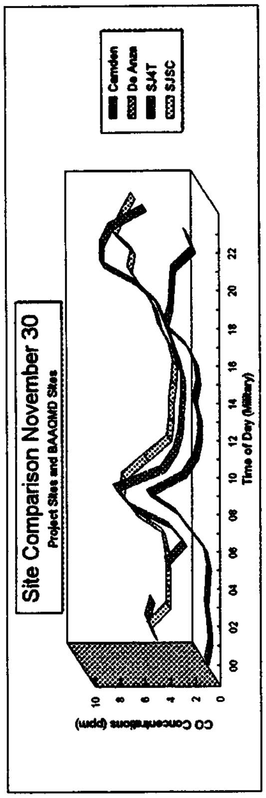


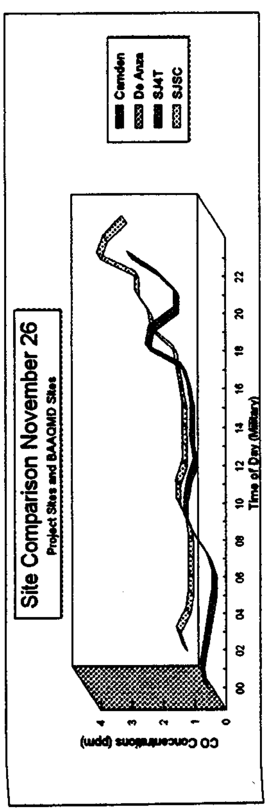


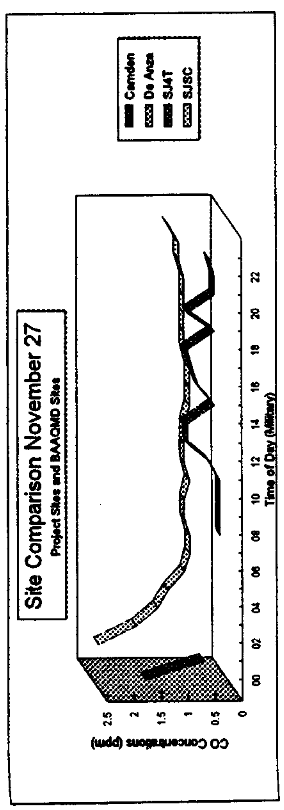


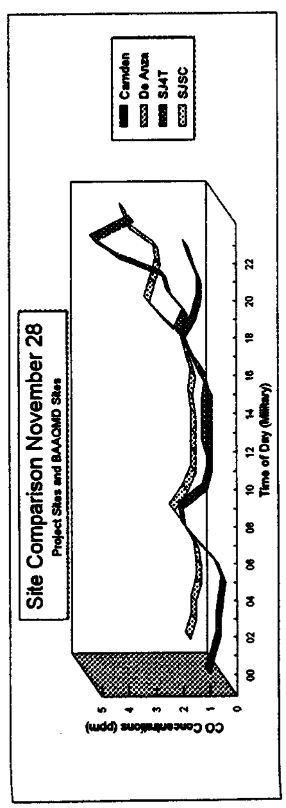


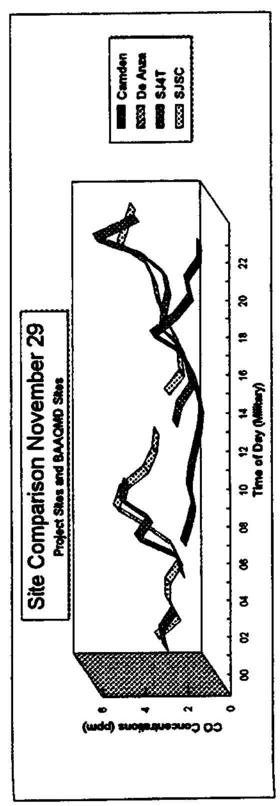
Note: Full size graphs are available upon request. See Appendix I for Sample



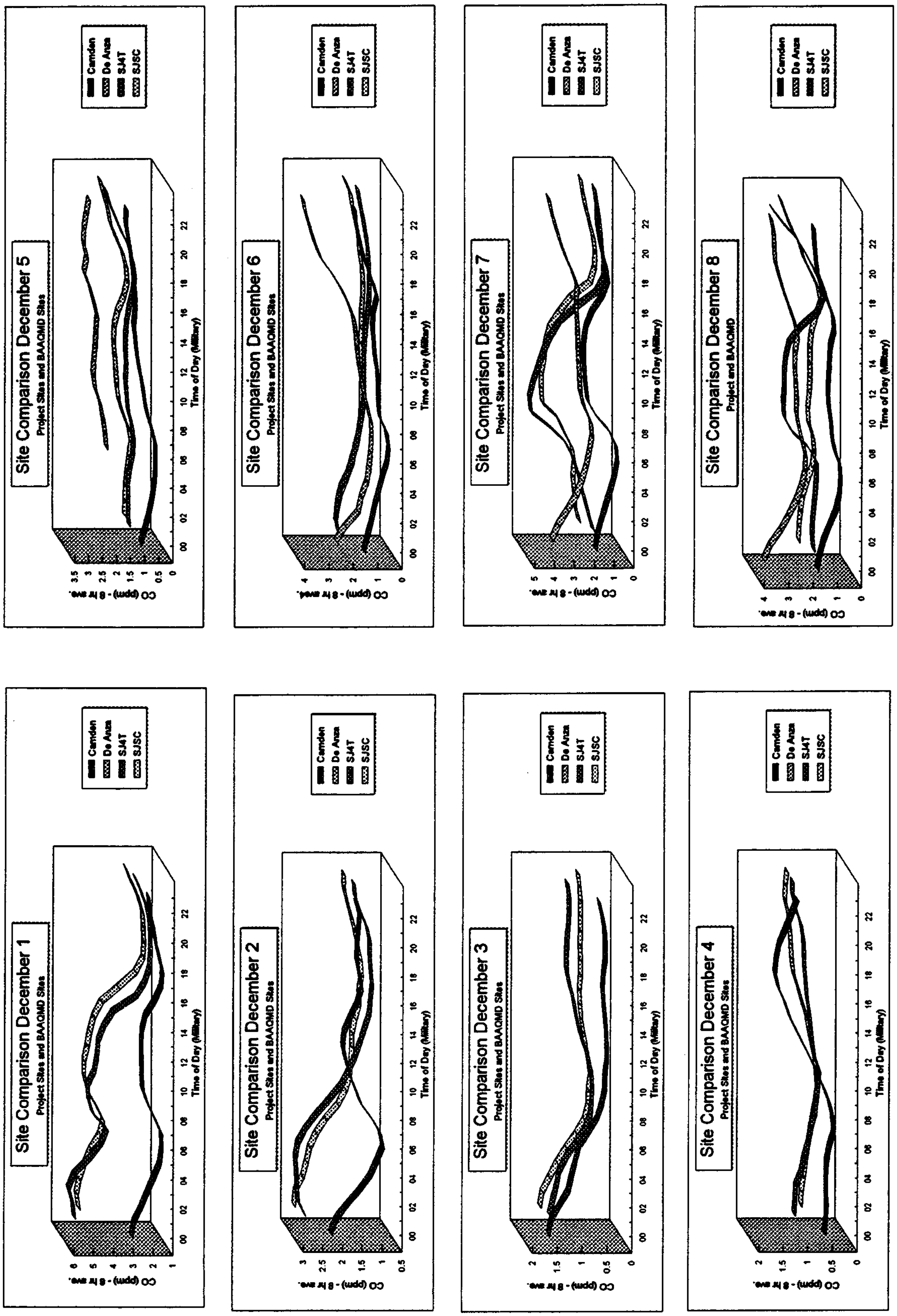




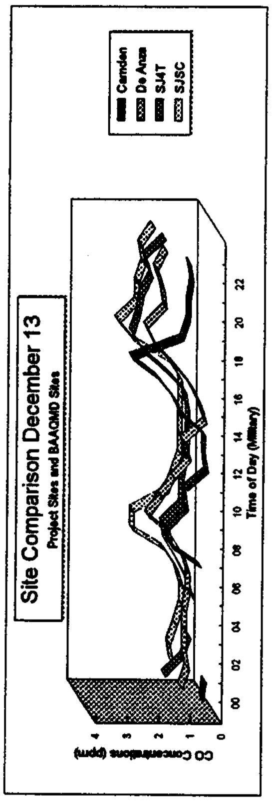


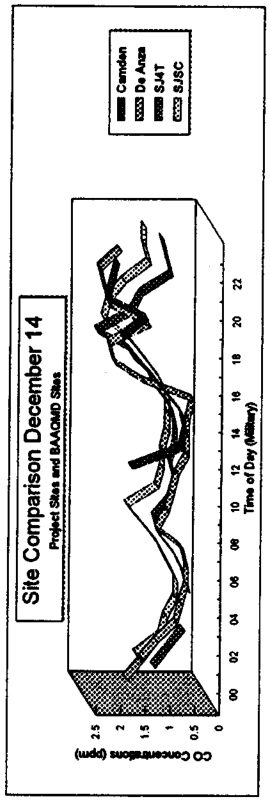


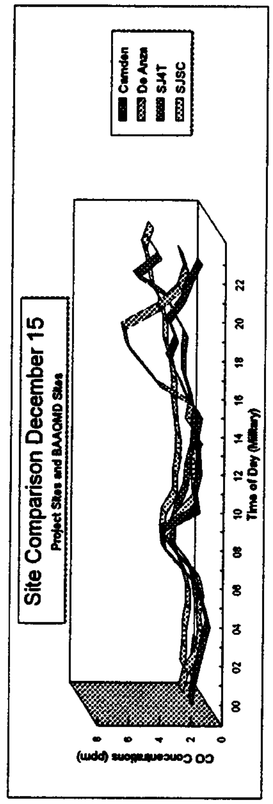
Note: Full size graphs are available upon request. See Appendix I for Sample

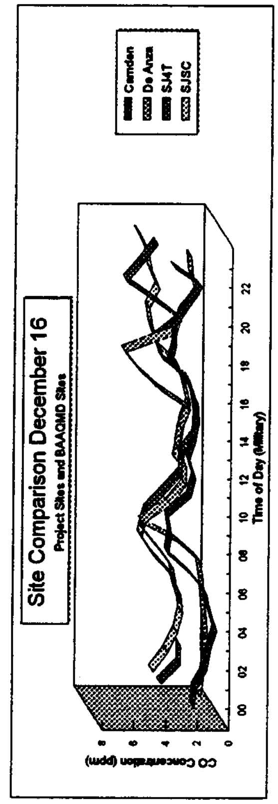


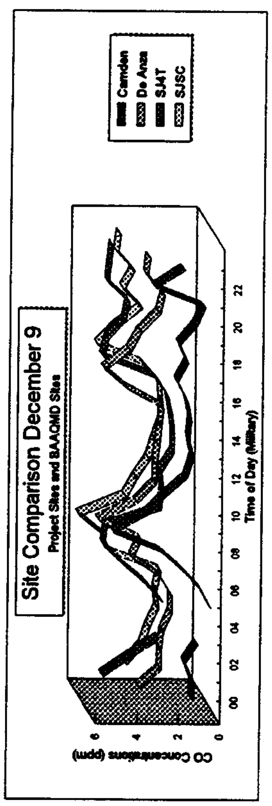
Note: Full size graphs are available upon request. See Appendix I for Sample

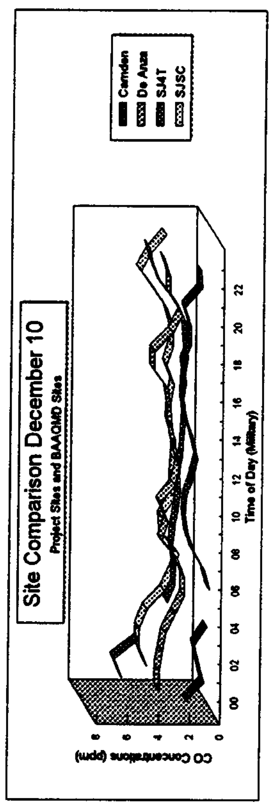


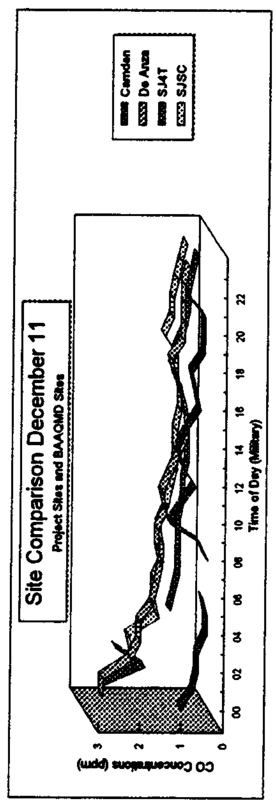


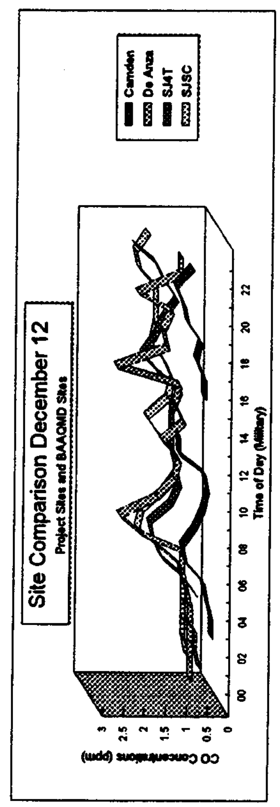






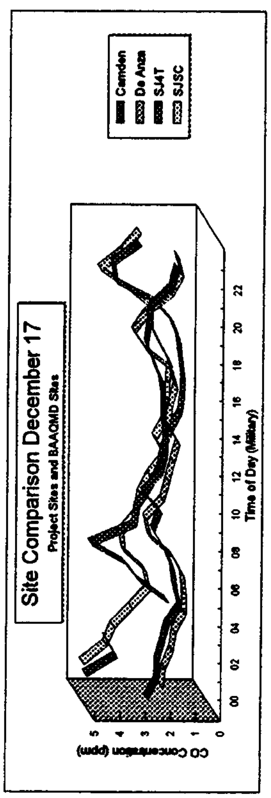


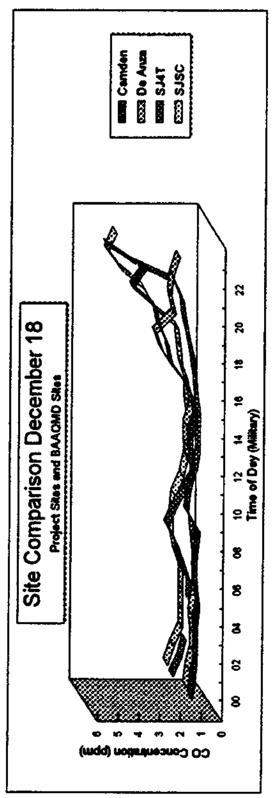


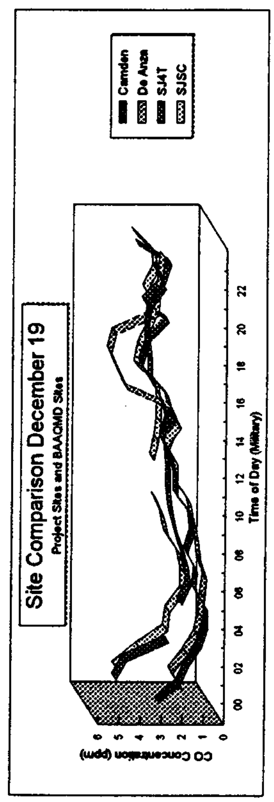


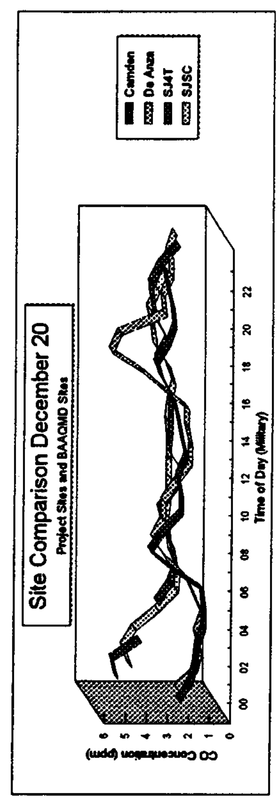
Note: Full size graphs are available upon request. See Appendix I for Sample

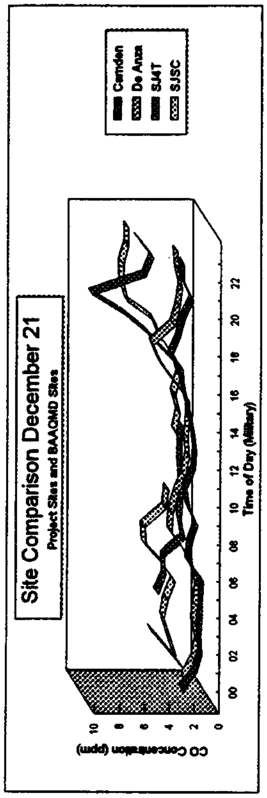
Site Comparisons - 8 Hour Averages **Exhibit 8B**

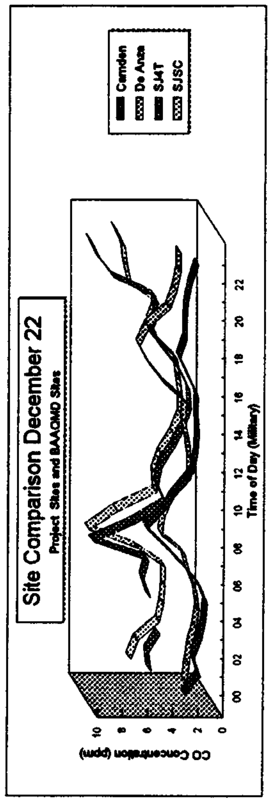


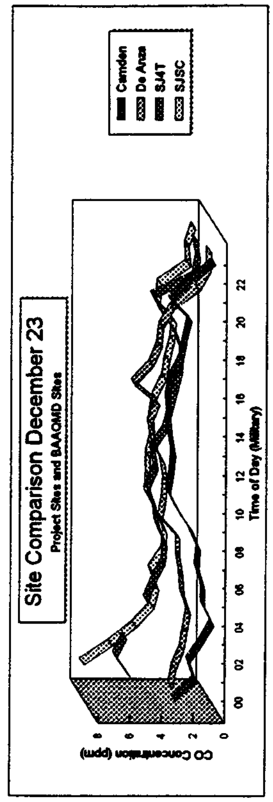


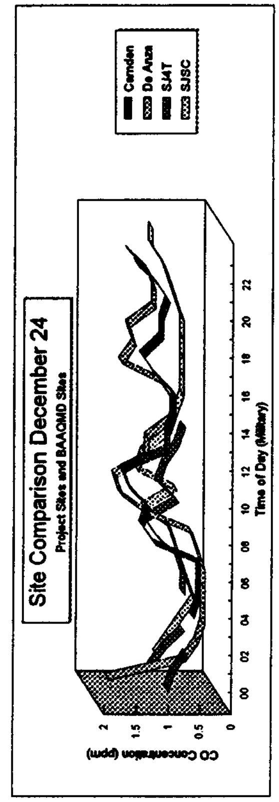




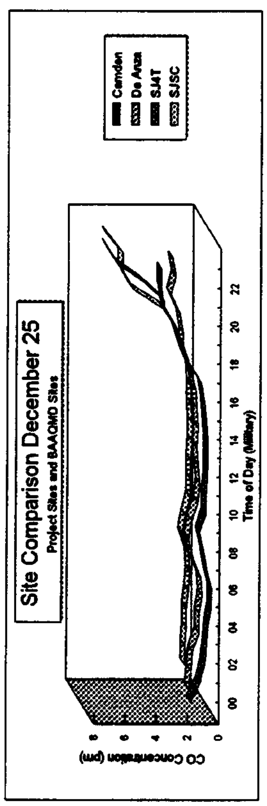


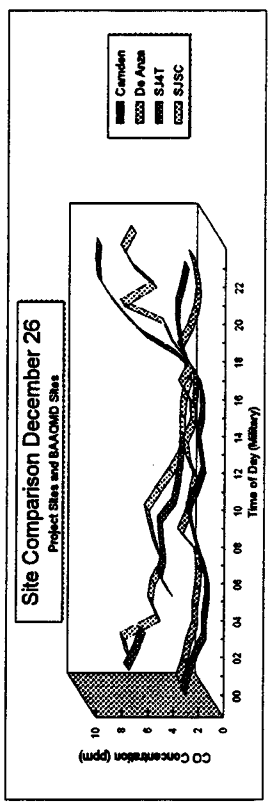


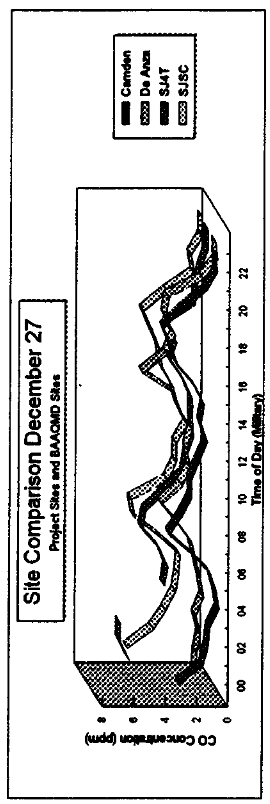


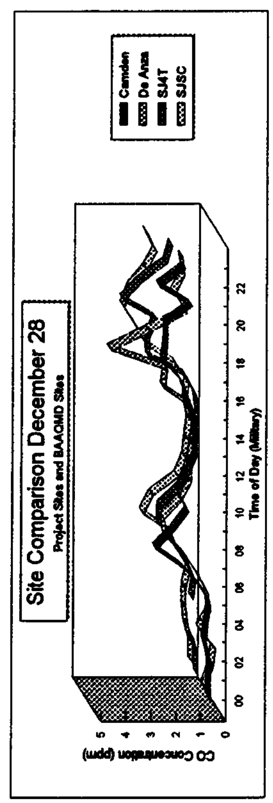


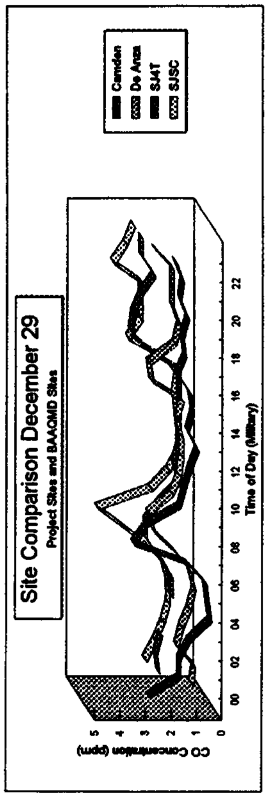
Note: Full size graphs are available upon request. See Appendix I for Sample

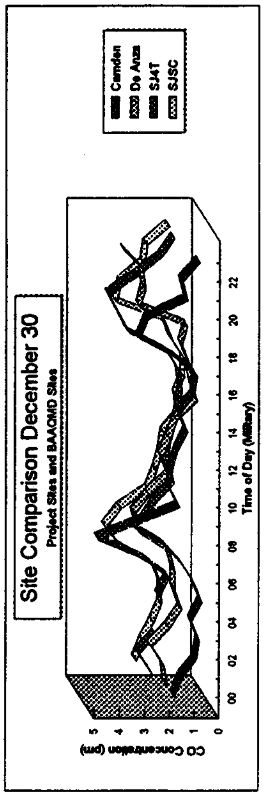


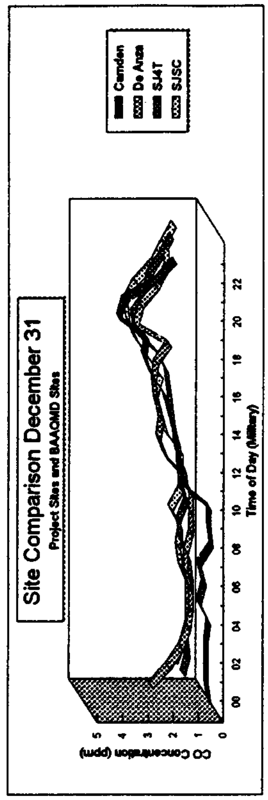




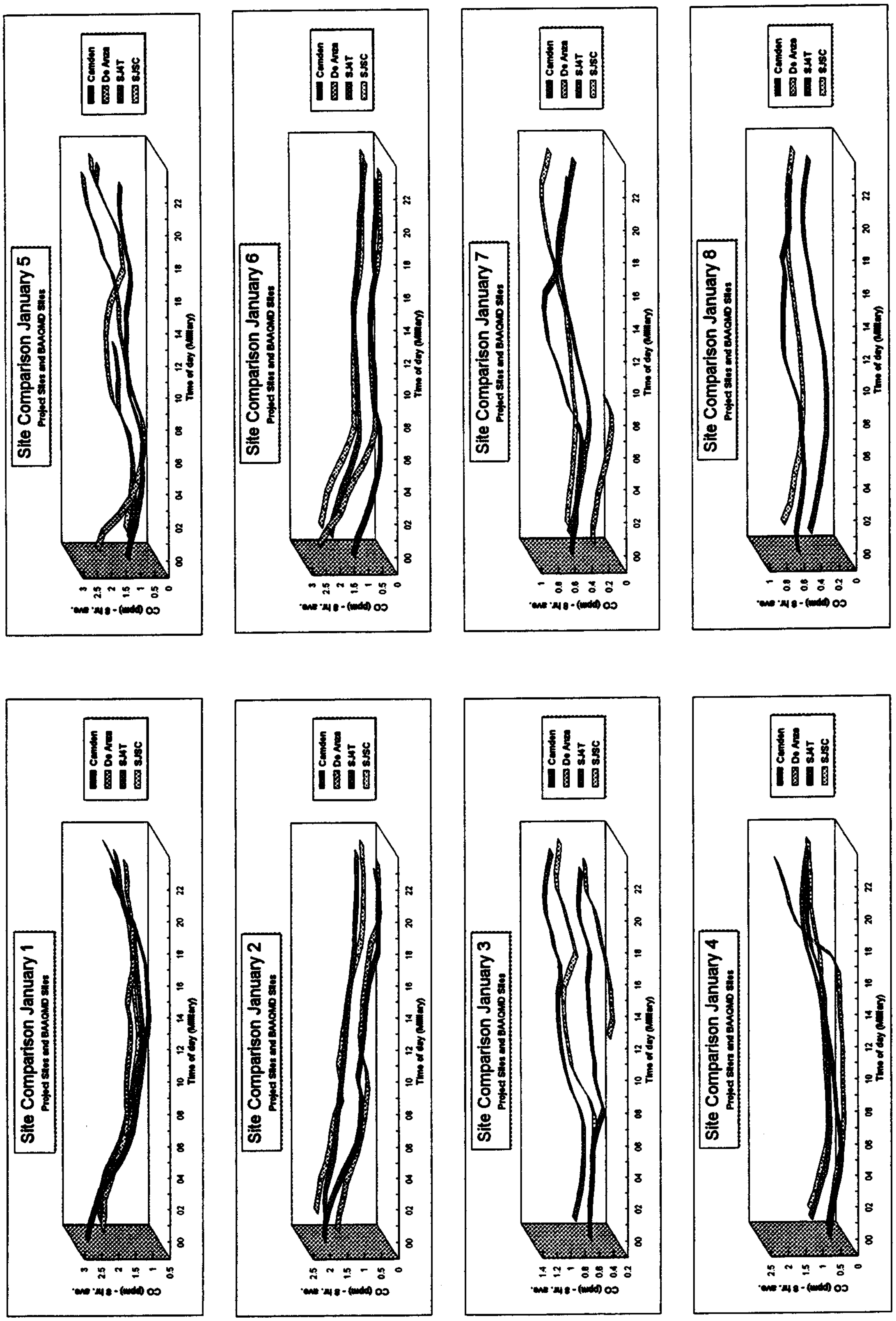








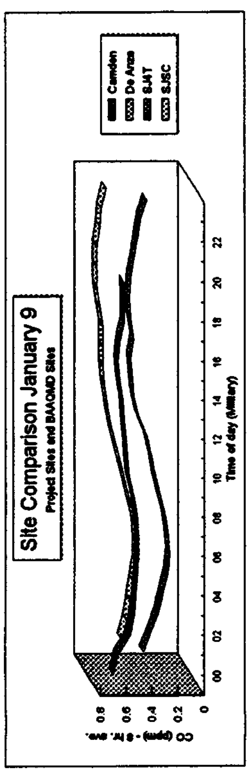
Note: Full size graphs are available upon request. See Appendix I for Sample

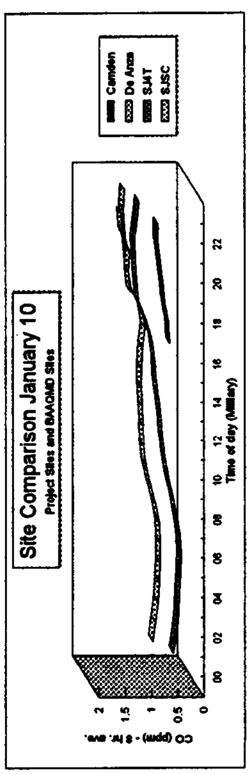


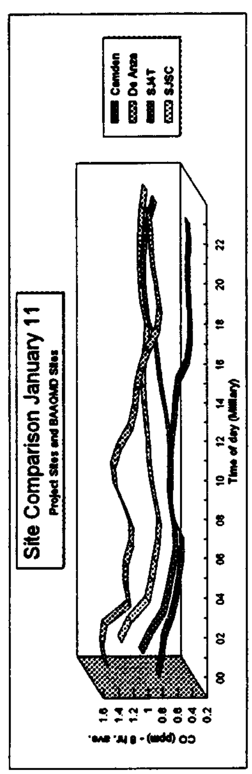
Note: Full size graphs are available upon request. See Appendix I for Sample

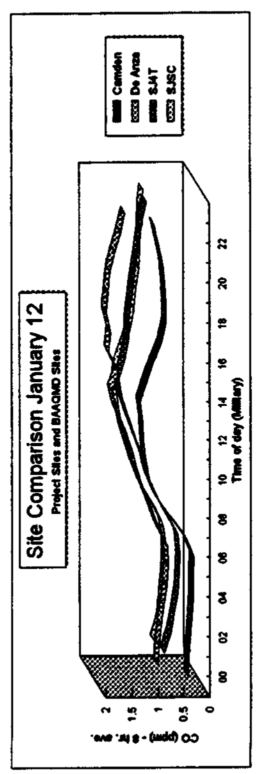
Site Comparisons - 8 Hour Averages

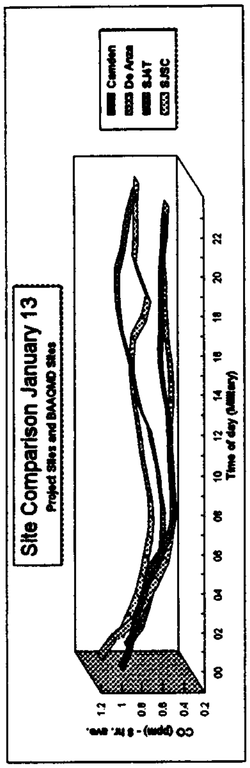
Exhibit 9A

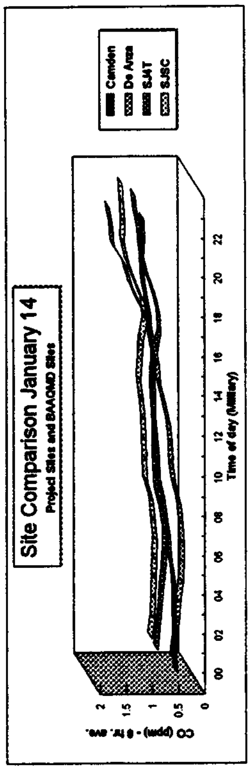


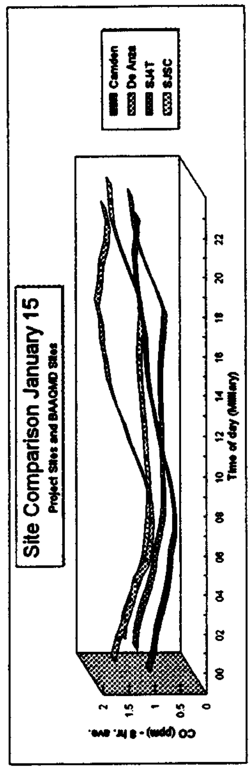


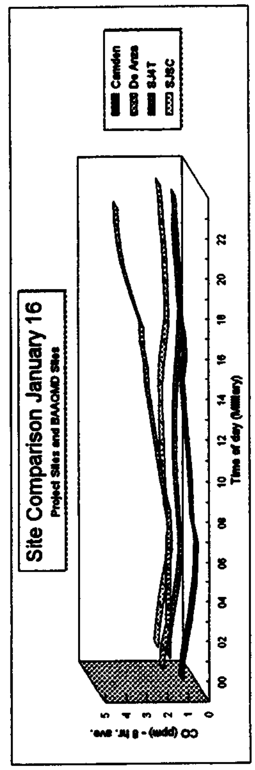




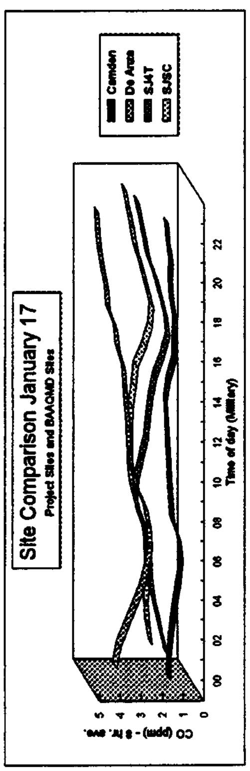


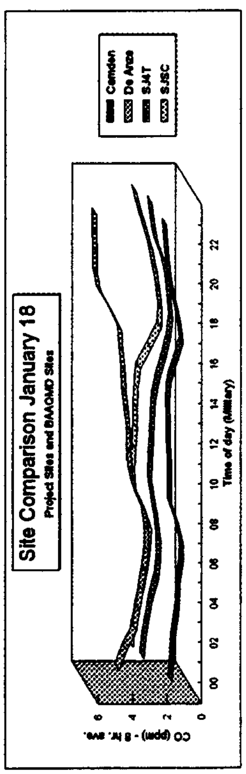


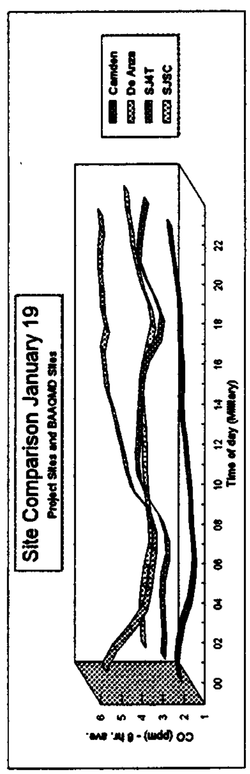


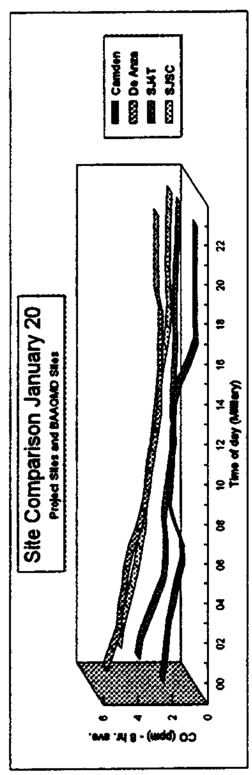


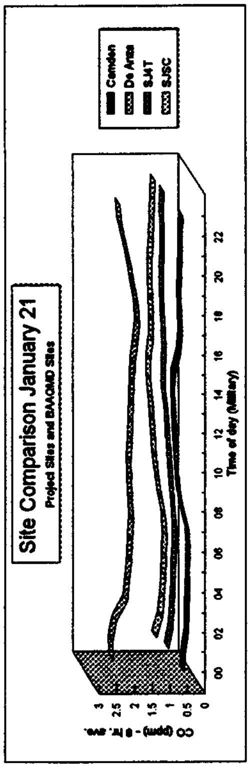
Note: Full size graphs are available upon request. See Appendix I for Sample

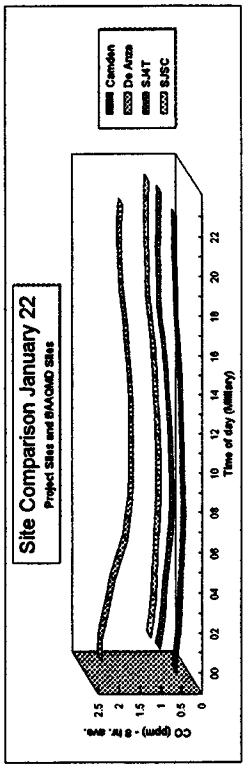


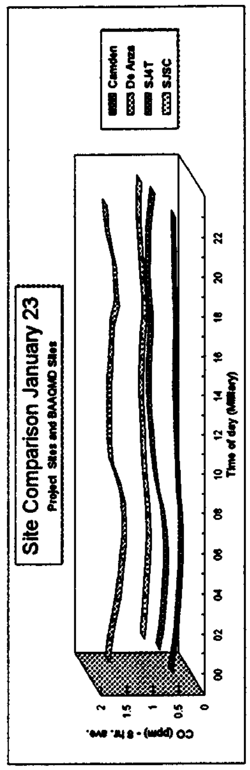


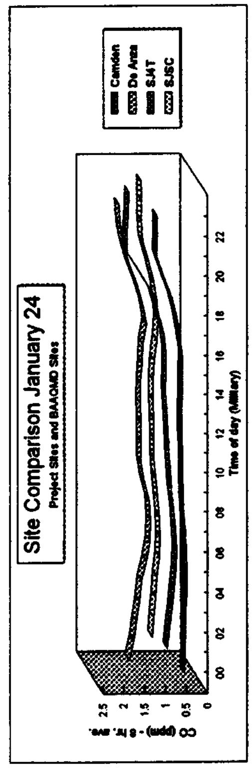




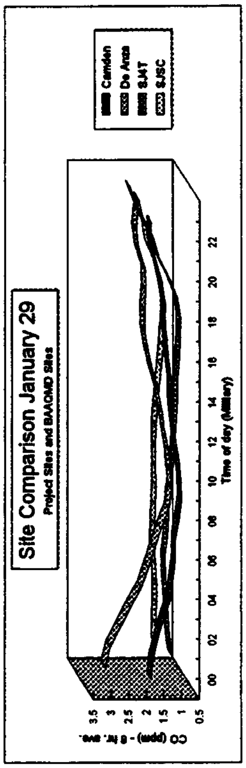


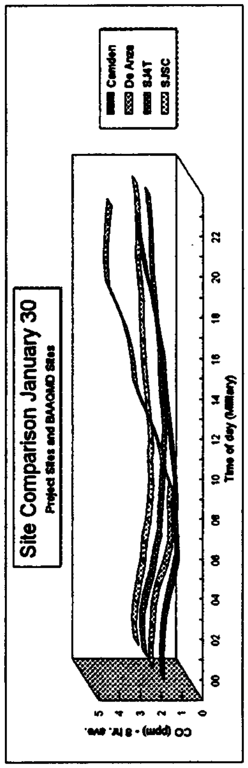


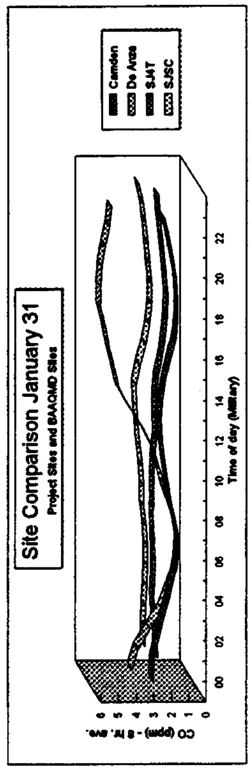


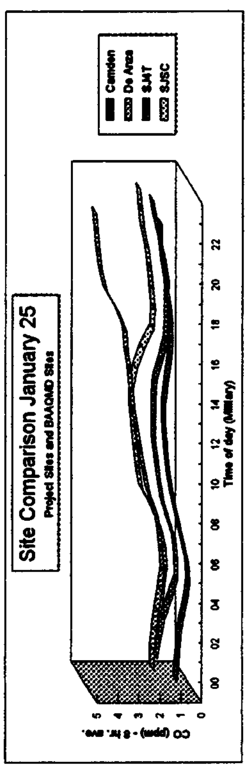


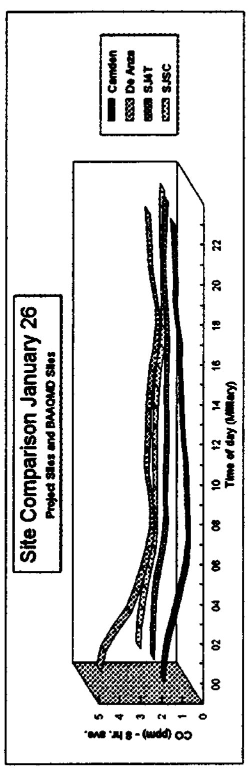
Note: Full size graphs are available upon request. See Appendix I for Sample

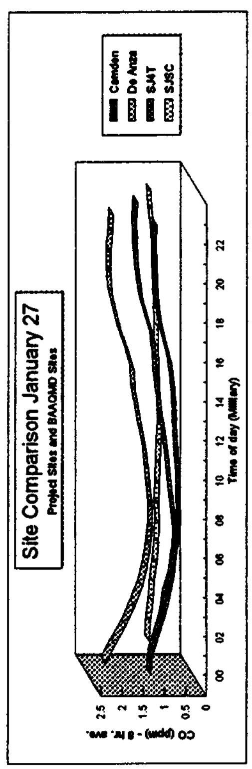


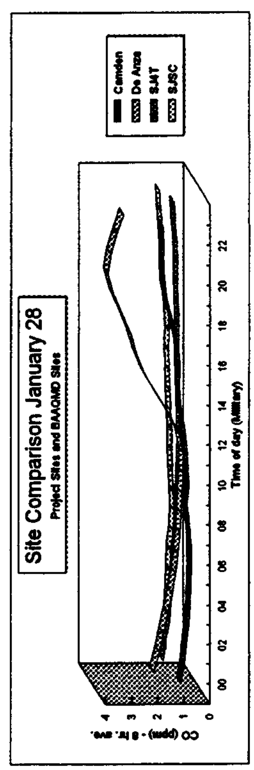






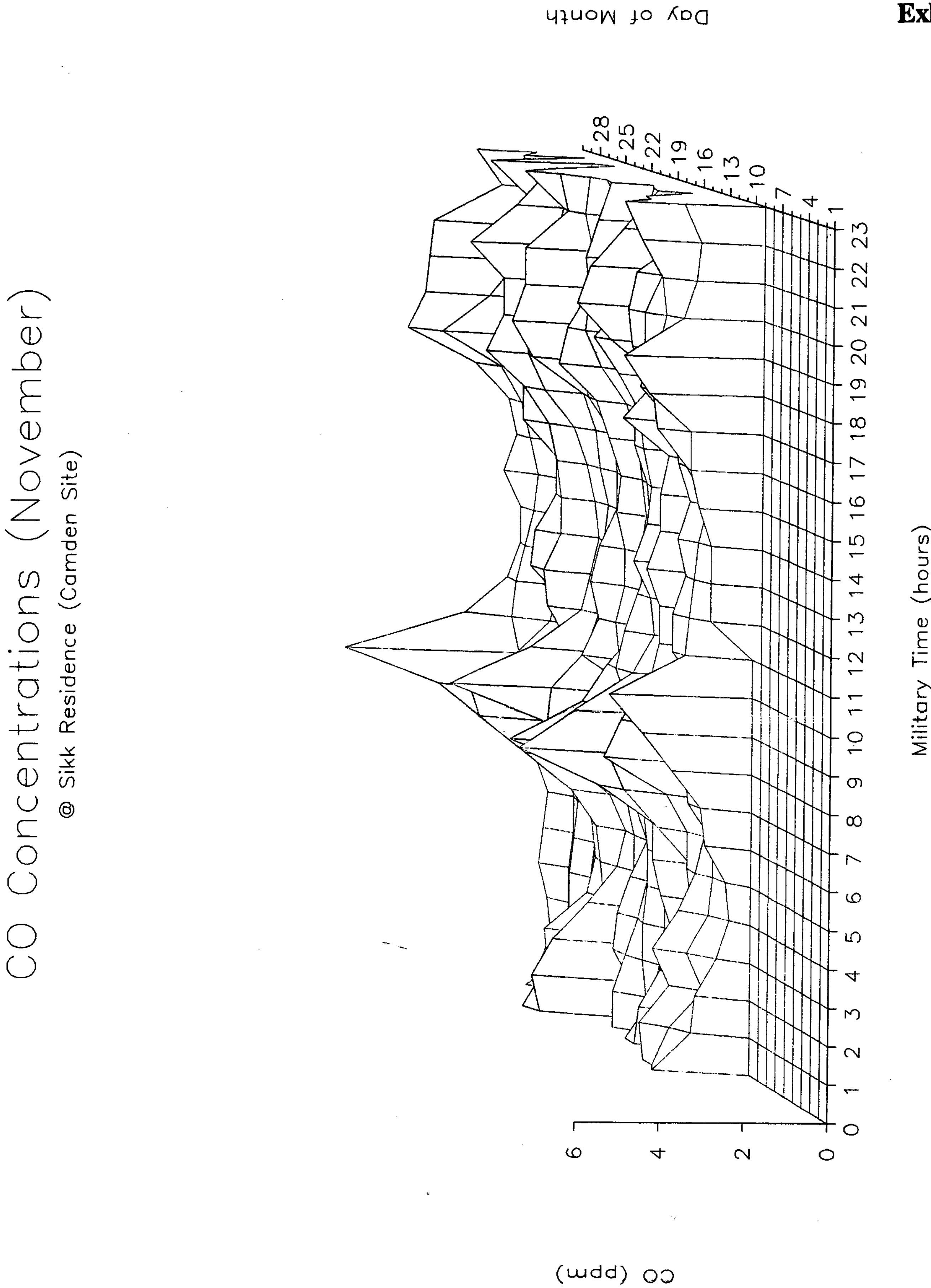






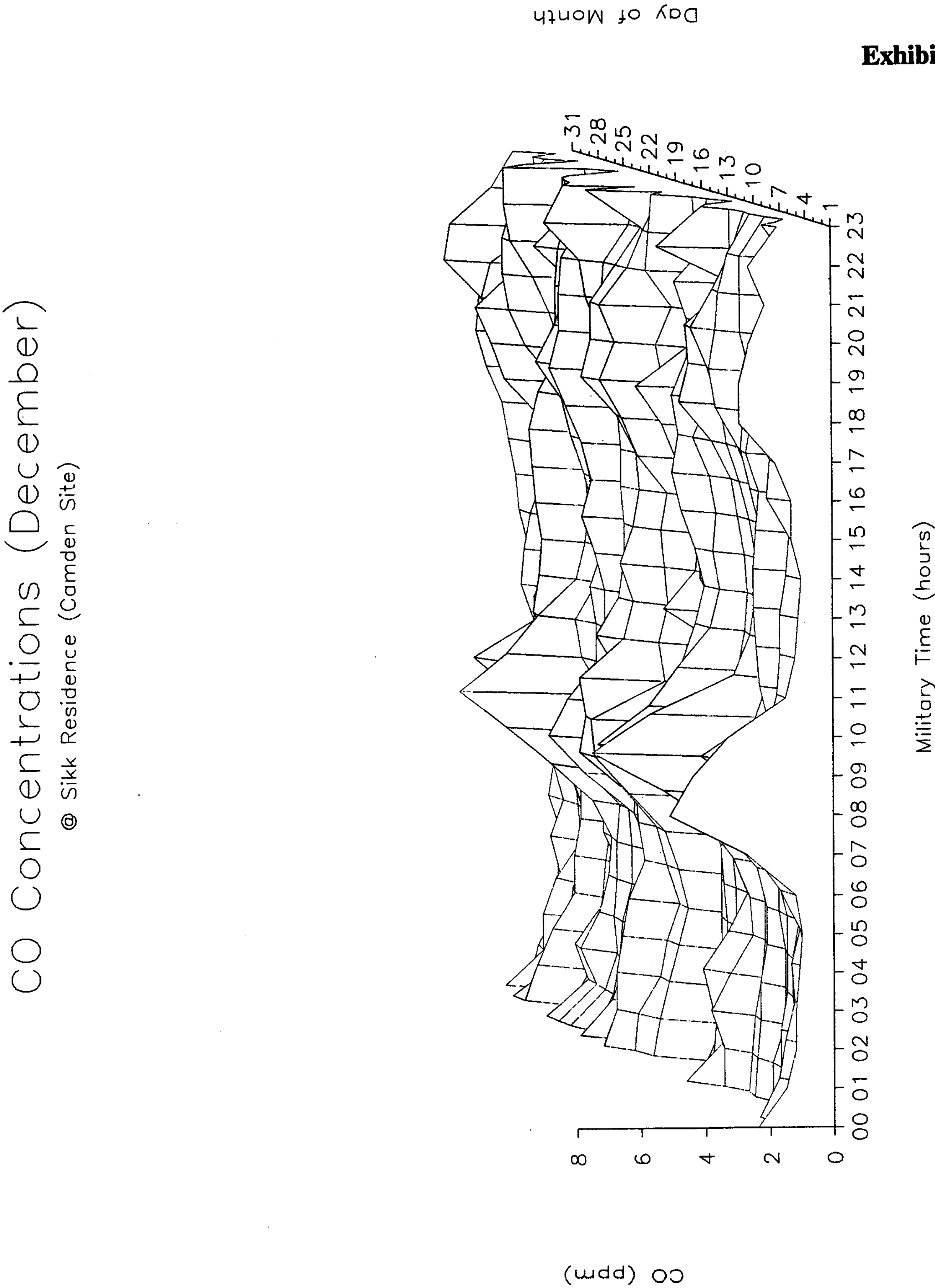
Note: Full size graphs are available upon request. See Appendix I for Sample

Exhibit 10



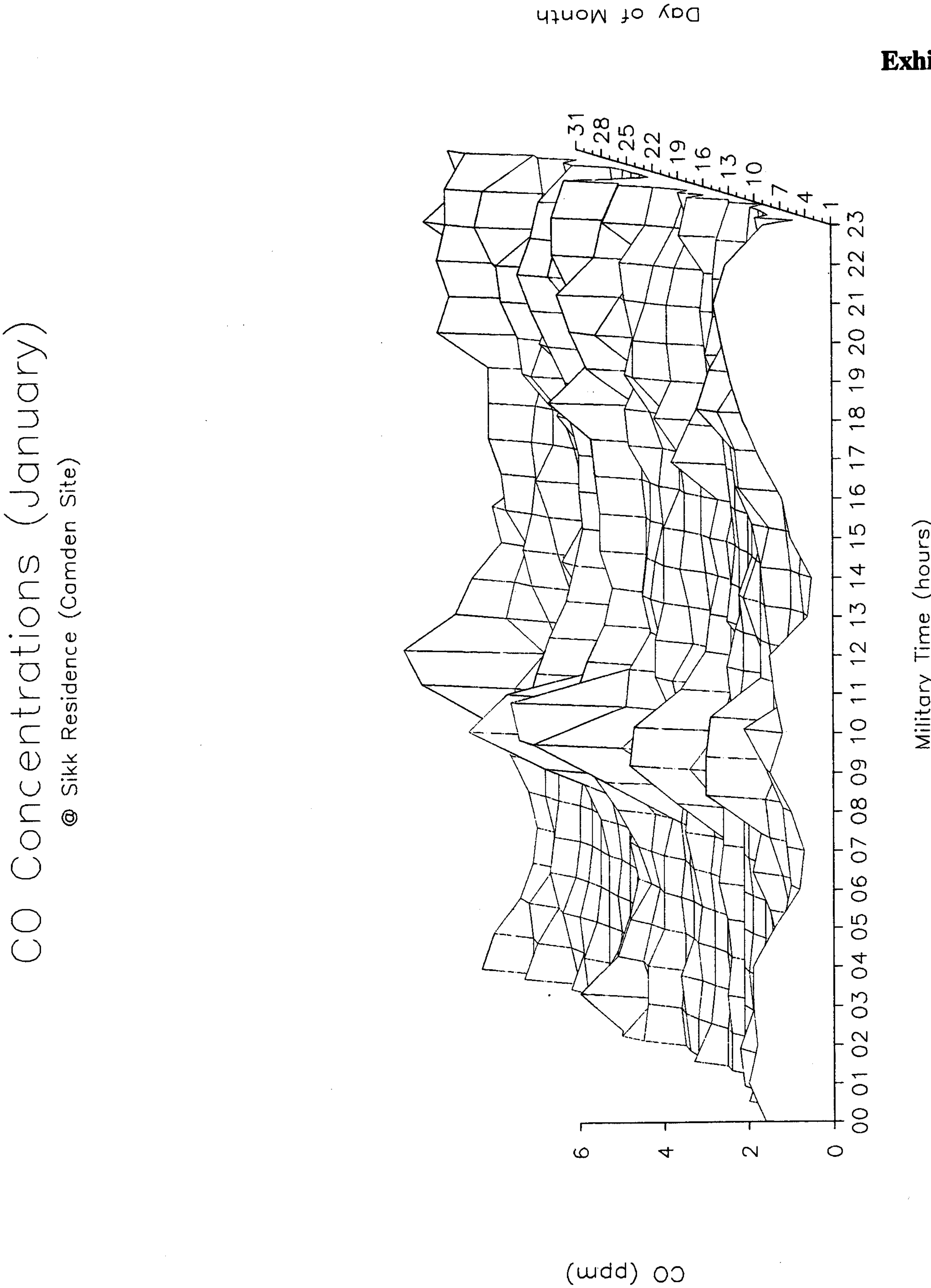
CO Concentrations (November)
@ Sikk Residence (Camden Site)
CO (ppm)
0
2
4
6
Military Time (hours)
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23
Day of Month
1 4 7 10 13 16 19 22 25 28

Exhibit 10A



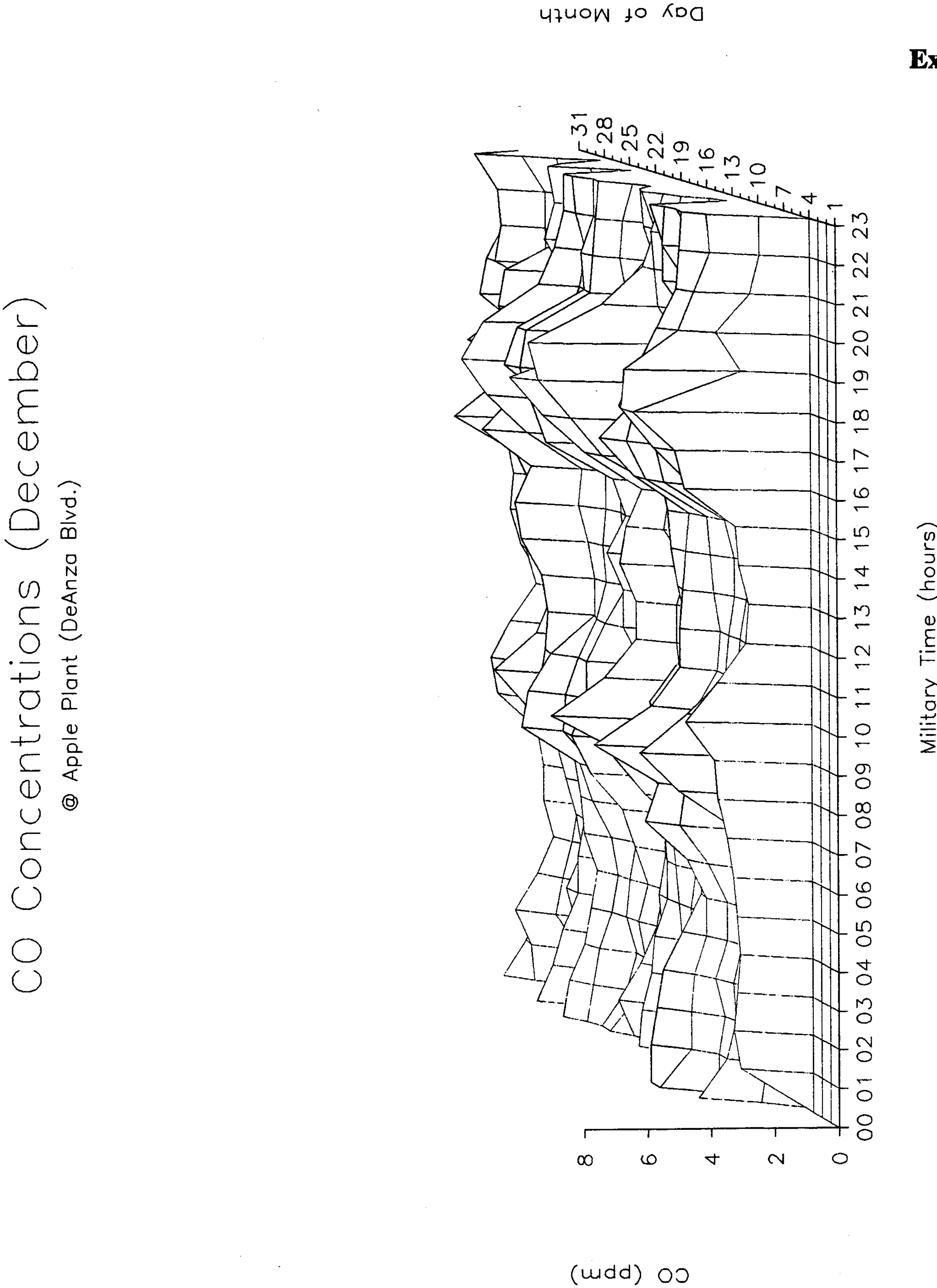
CO Concentrations (December)
@ Sikk Residence (Camden Site)
Day of Month
31 28 25 22 19 16 13 10 7 4 1
CO (ppm)
0 2 4 6 8
00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23
Military Time (hours)

Exhibit 10B



CO Concentrations (January)
@ Sikk Residence (Camden Site)
Day of Month
1 4 7 10 13 16 19 22 25 28 31
CO (ppm)
0 2 4 6
Military Time (hours)
00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23

Exhibit 11



CO Concentrations (December)
@ Apple Plant (DeAnza Blvd.)
Day of Month
31
28
25
22
19
16
13
10
7
4
1
CO (ppm)
0
2
4
6
8
00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23
Military Time (hours)

Exhibit 11A

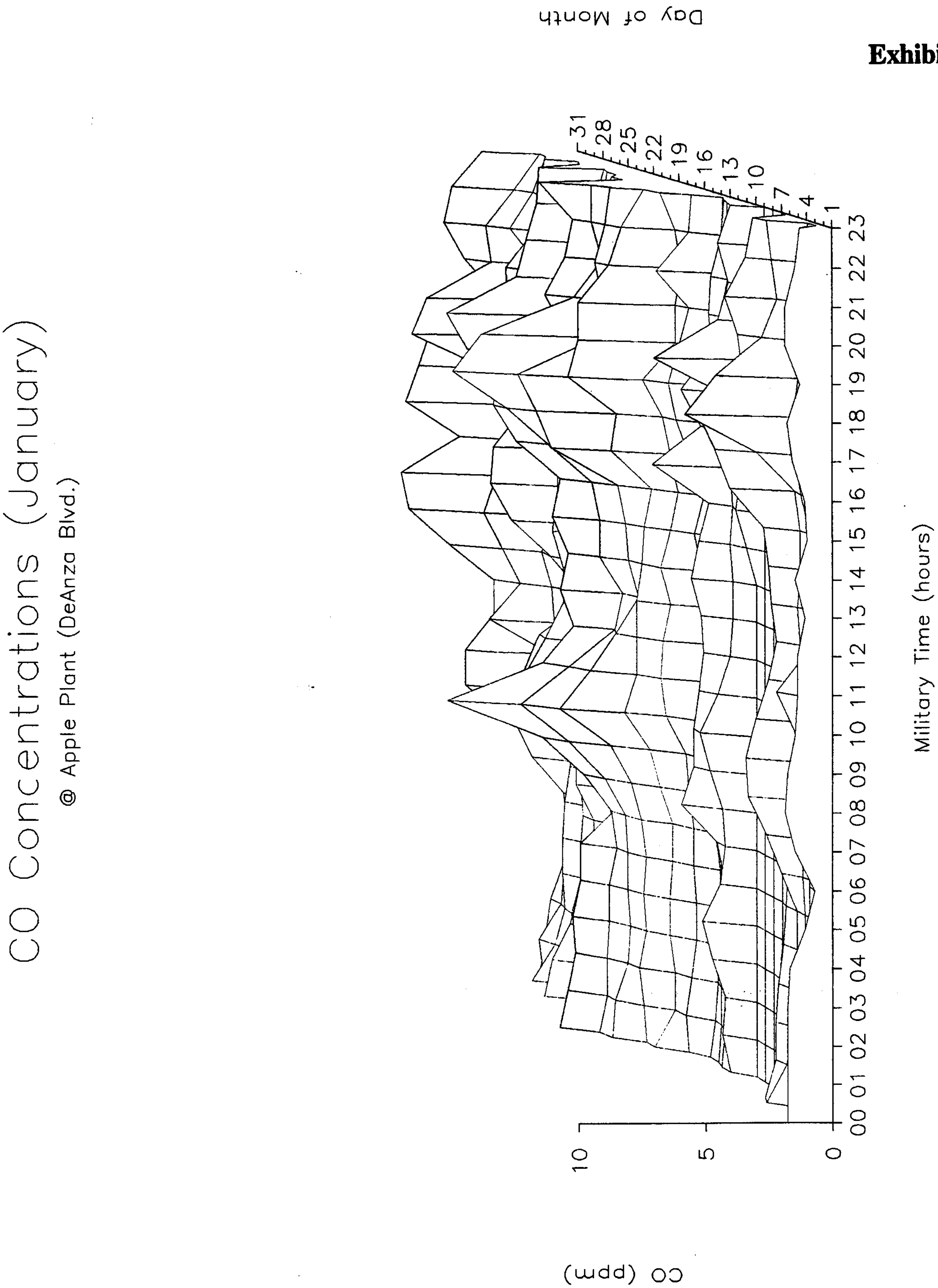

CO Concentrations (January)
@ Apple Plant (DeAnza Blvd.)
CO (ppm)
0
5
10
Military Time (hours)
00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23
Day of Month
1
4
7
10
13
16
19
22
25
28
31

Exhibit 12

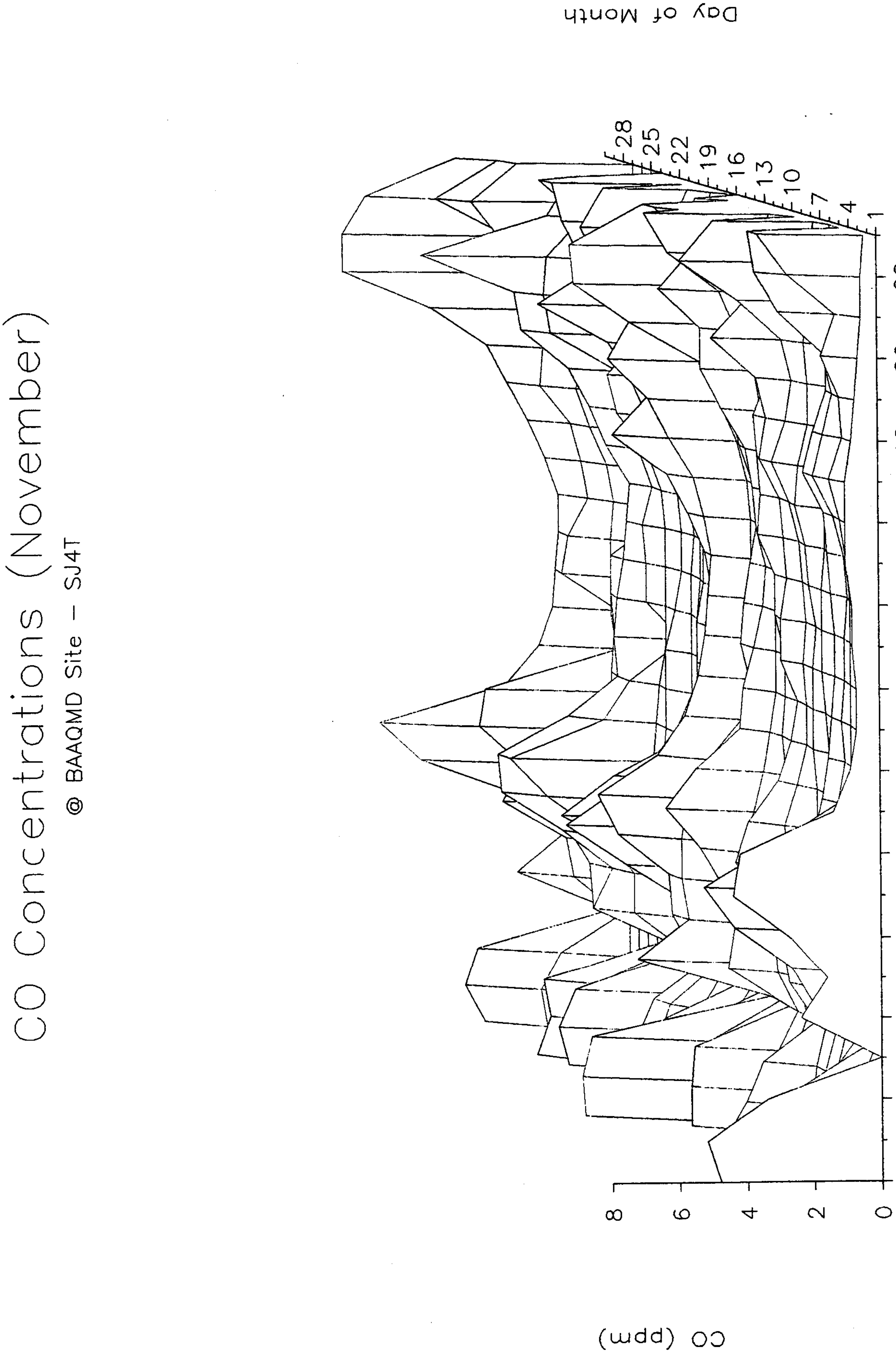
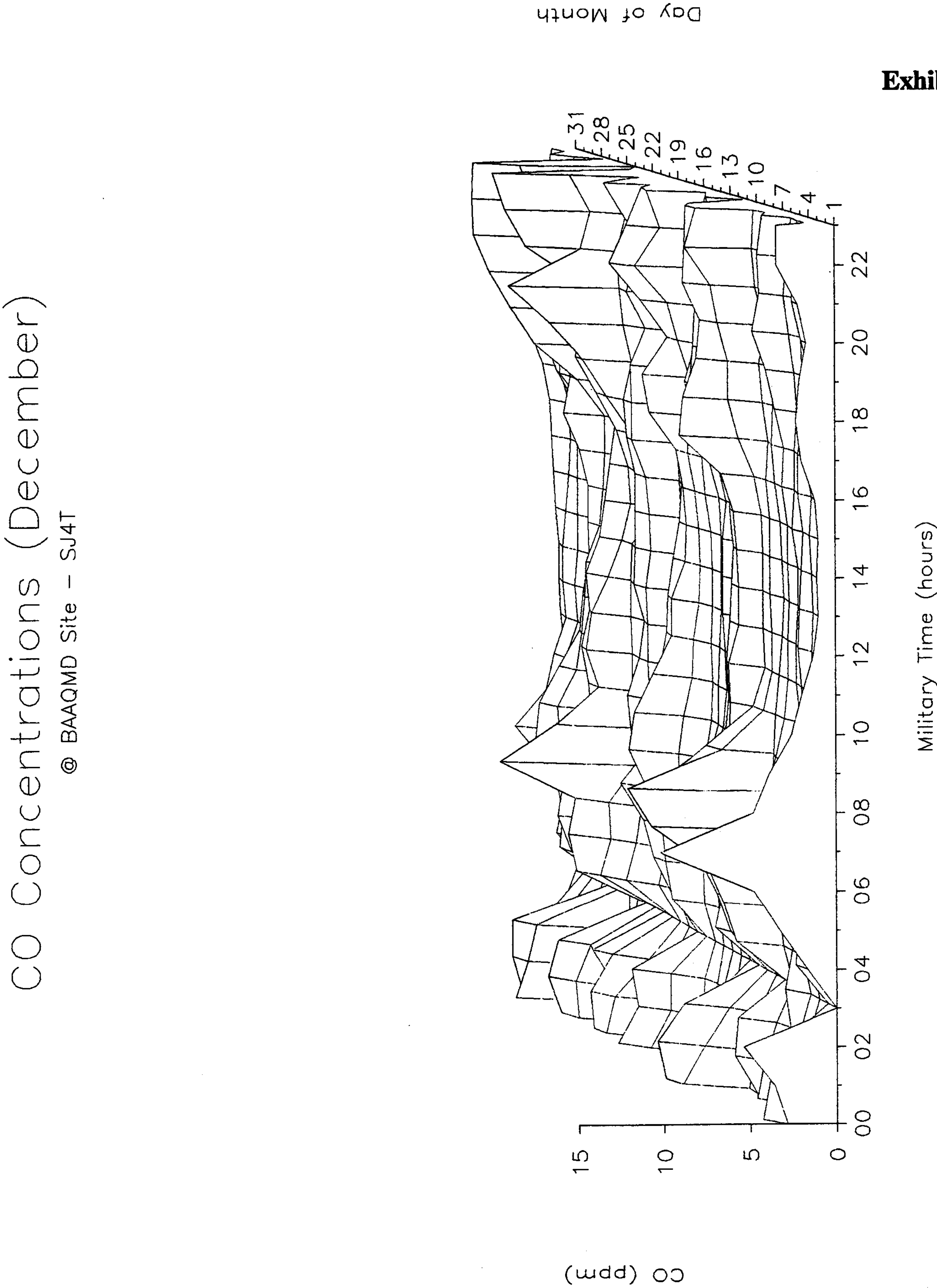
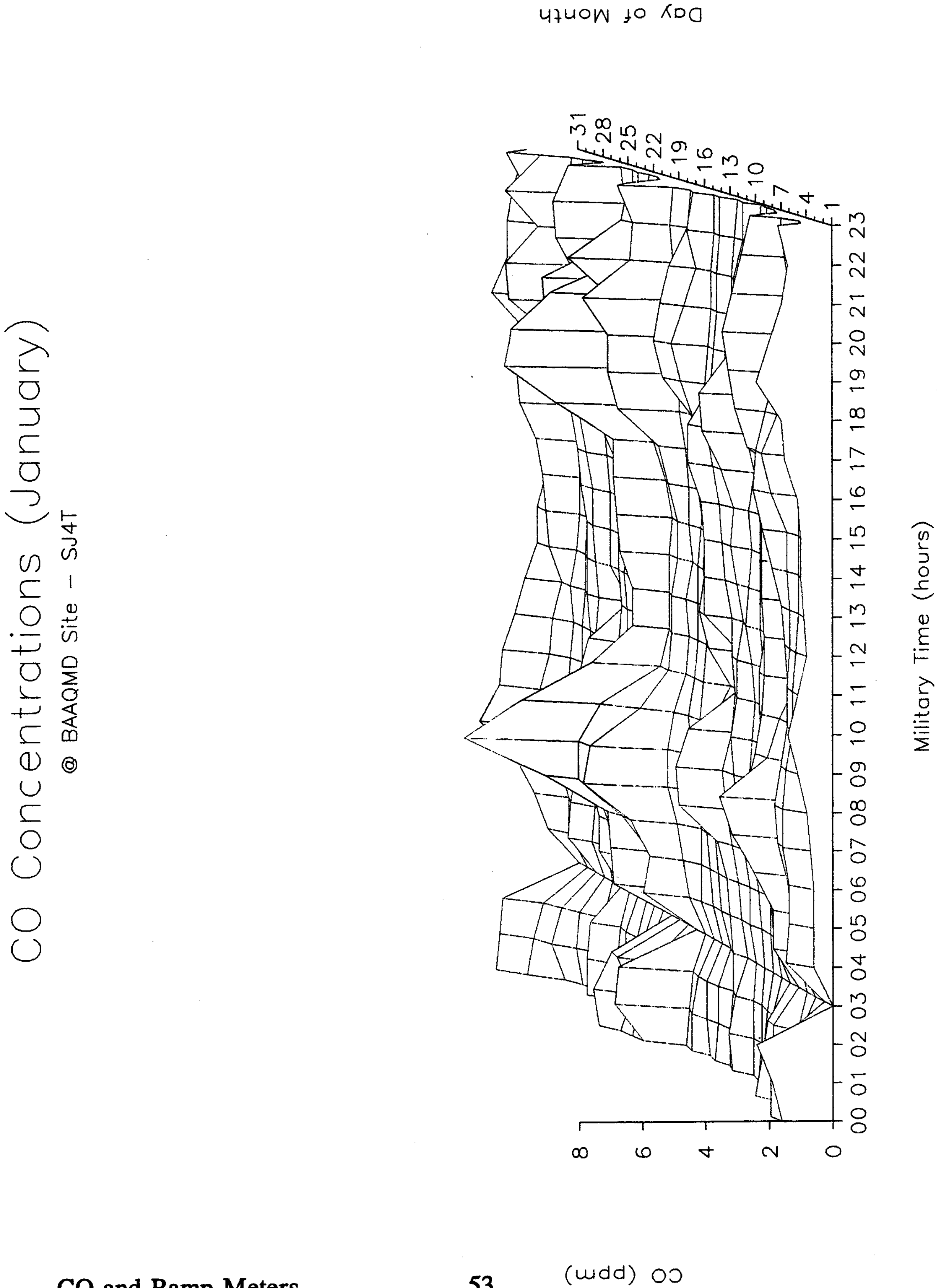

CO Concentrations (November)
@ BAAQMD Site - SJ4T
Day of Month
28
25
22
19
16
13
10
7
4
1
Military Time (hours)
00
02
04
06
08
10
12
14
16
18
20
22
CO (ppm)
0
2
4
6
8

Exhibit 12A



CO Concentrations (December)
@ BAAQMD Site - SJ4T
Day of Month
31
28
25
22
19
16
13
10
7
4
1
CO (ppm)
15
10
5
0
Military Time (hours)
00
02
04
06
08
10
12
14
16
18
20
22

Exhibit 12B



CO Concentrations (January)
@ BAAQMD Site - SJ4T
Day of Month
31 28 25 22 19 16 13 10 7 4 1
00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23
Military Time (hours)
0 2 4 6 8
CO (ppm)

Exhibit 13

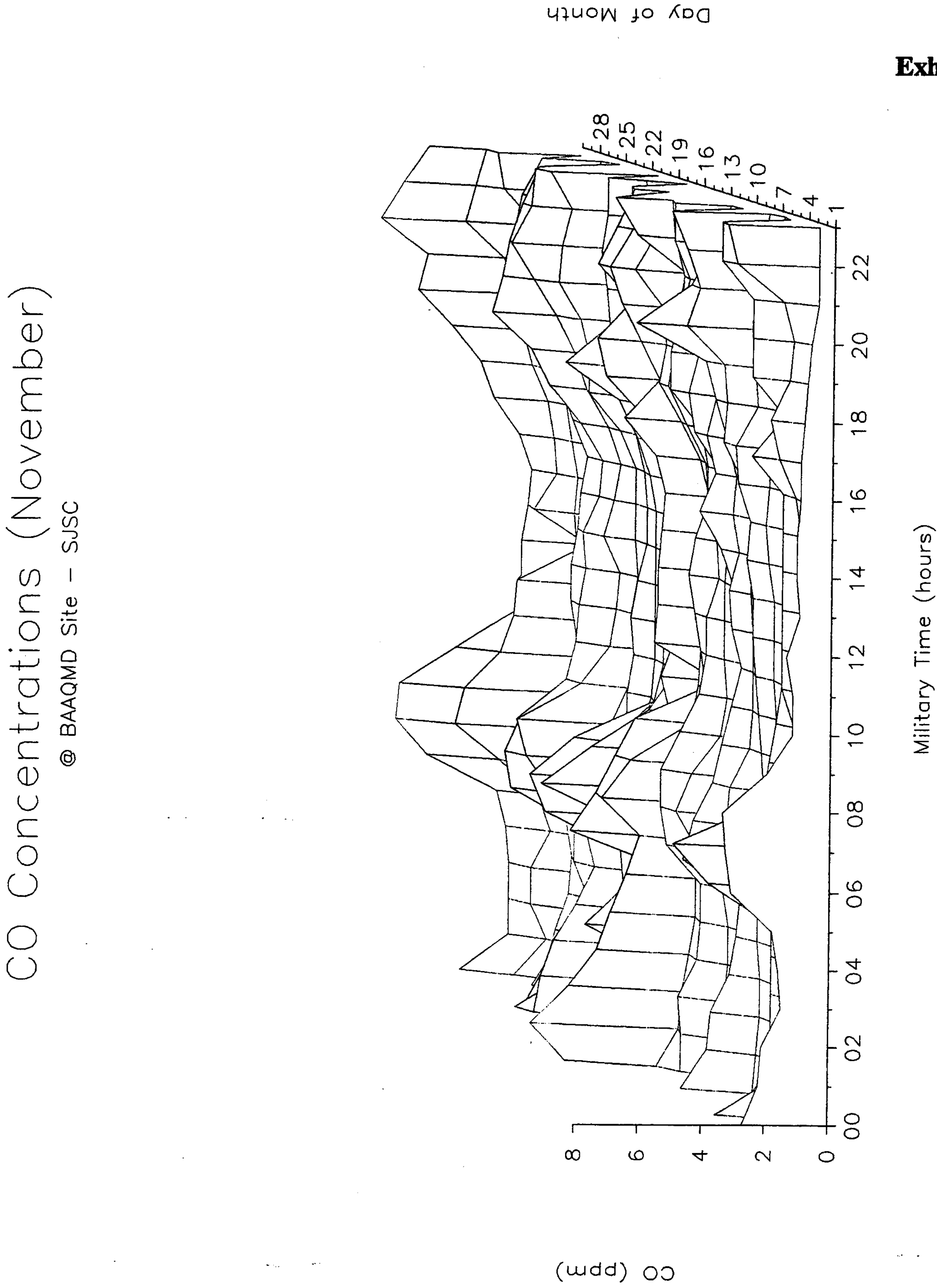
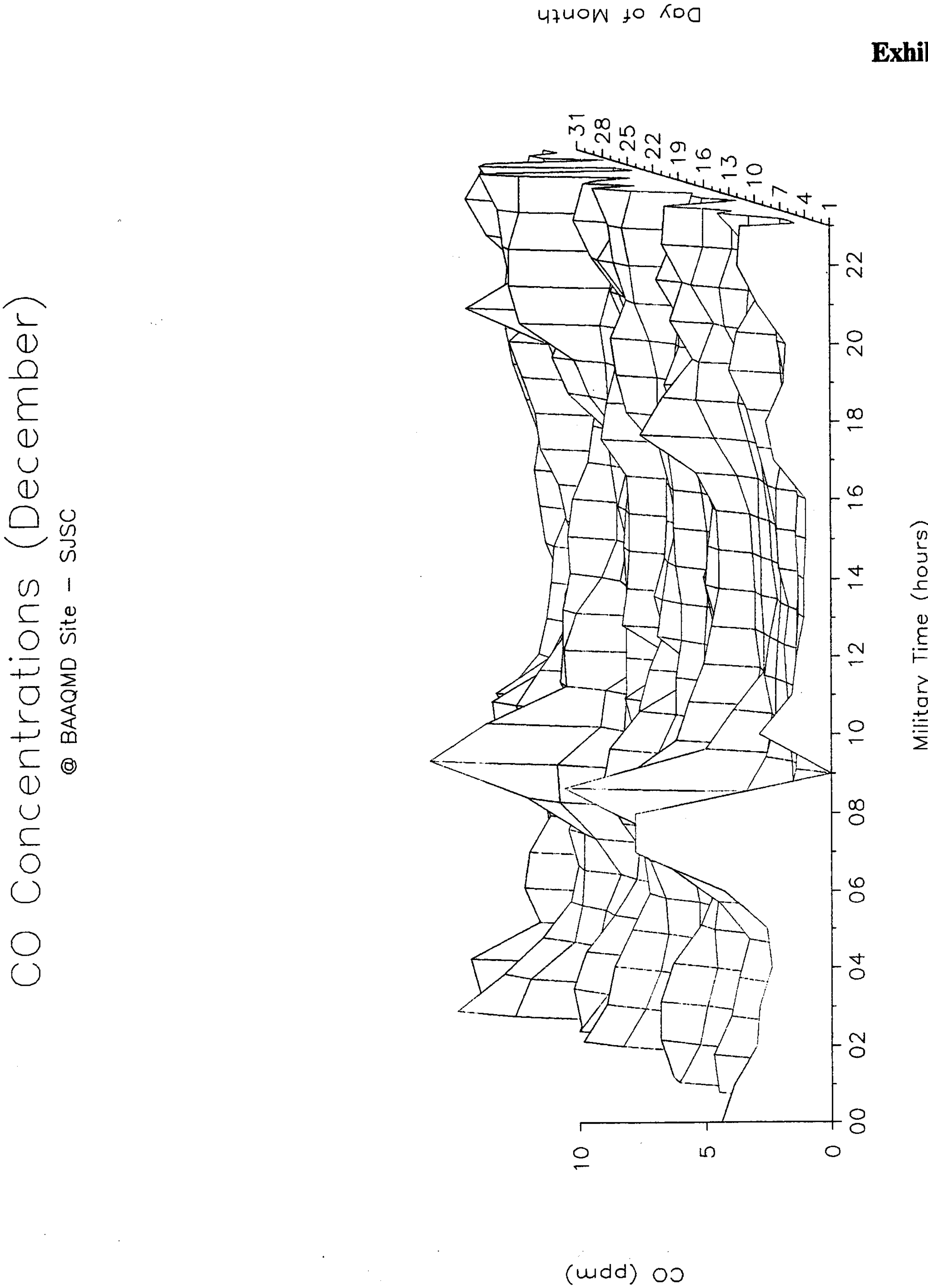
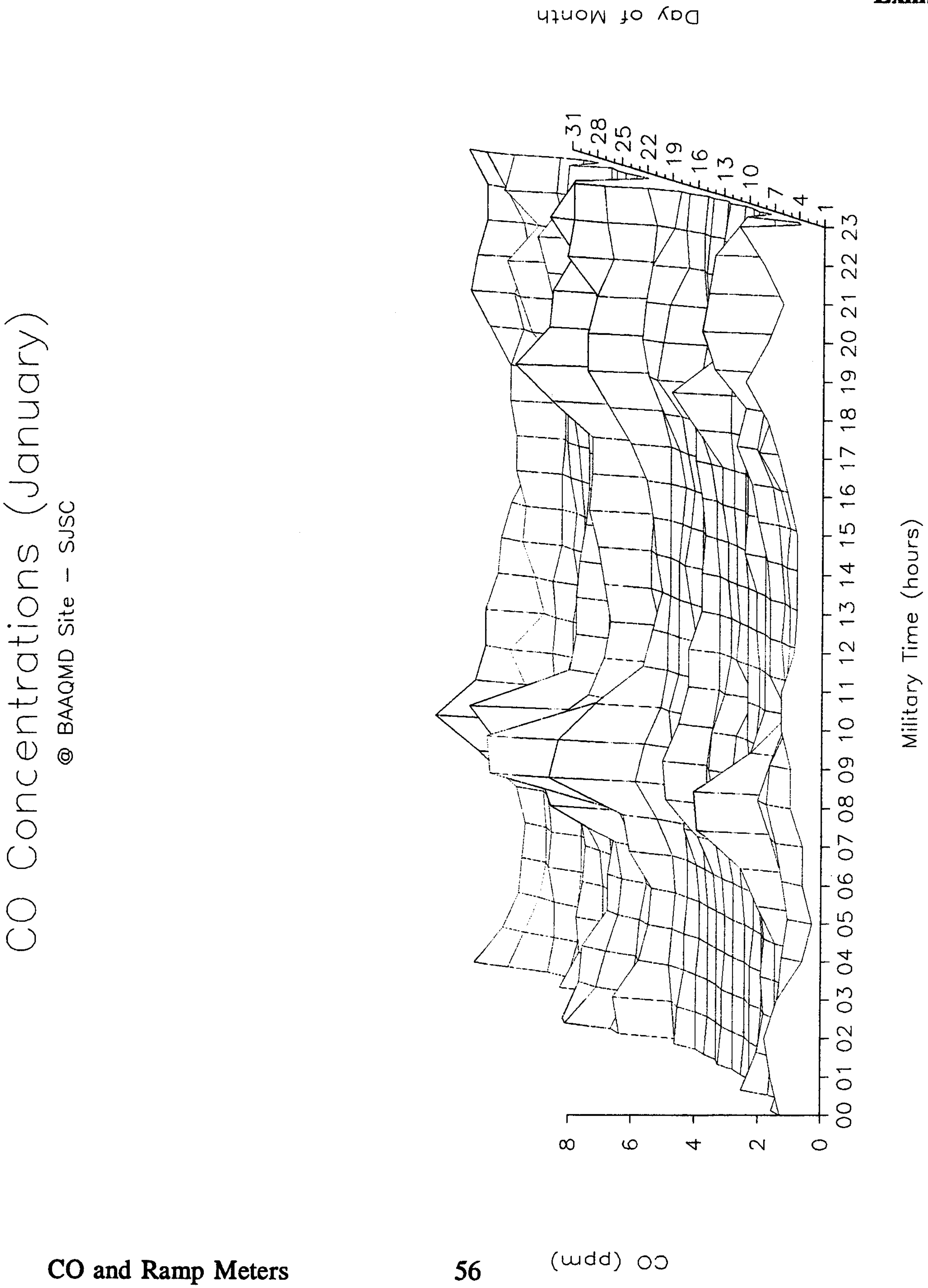

CO Concentrations (November)
@ BAAQMD Site - SJSC
Day of Month
1 4 7 10 13 16 19 22 25 28
Military Time (hours)
00 02 04 06 08 10 12 14 16 18 20 22
CO (ppm)
0 2 4 6 8

Exhibit 13A


CO Concentrations (December)
@ BAAQMD Site - SJSC
CO (ppm)
0
5
10
Military Time (hours)
00
02
04
06
08
10
12
14
16
18
20
22
Day of Month
1
4
7
10
13
16
19
22
25
28
31


CO Concentrations (January)
@ BAAQMD Site - SJSC
Day of Month
31 28 25 22 19 16 13 10 7 4 1
Military Time (hours)
00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23
CO (ppm)
0 2 4 6 8

REFERENCES

1. Bemis, G.R.,et al, "Air Pollution and Roadway location, Design, and Operation -- Project Overview," Caltrans, FHWA/CA/TL/7080-77/25, September 1977.

2. Benson, P.E., et al, "Air Quality Technical Analysis Notes," Caltrans, June 1988

3. Benson, P.E., et al, "CALINE4 -- A Disperstion Model for Predicting Air Pollutant Levels Near Highways and Arterial Streets," Caltrans, FHWA/CA/TL-84/15, June 1989.

4. Bensen, P.E., et al, "Measurement and Analysis of Ambient Carbon Monoxide Concentrations for Project-Level Air Quality Impact Studies", Caltrans, FHWA/CA/TL84/01, February 1984.

5. Nokes, W.A., et al, "Carbon Monoxide Concentrations Adjacent to Sound Barriers", Caltrans, FHWA/CA/TL-84/04, March 1984.

6. Deakin, Harvery, & Skabardonis, Inc.,"Carbon Monixide Transportation Project Protocol, " Southern California Association of Governments (SCAG), December 1992.

7. Metropolitan Transportation Commission Staff, Resolution No. 2270, MTC, April 17, 1991.

8. Metropolitan Transportation Commission Staff, et al, "Project Sponsor Guidance and Checklist for Carbon Monoxide Analysis Performed for Conformity Assessment of Transportation Projects," MTC, revised March 1993.

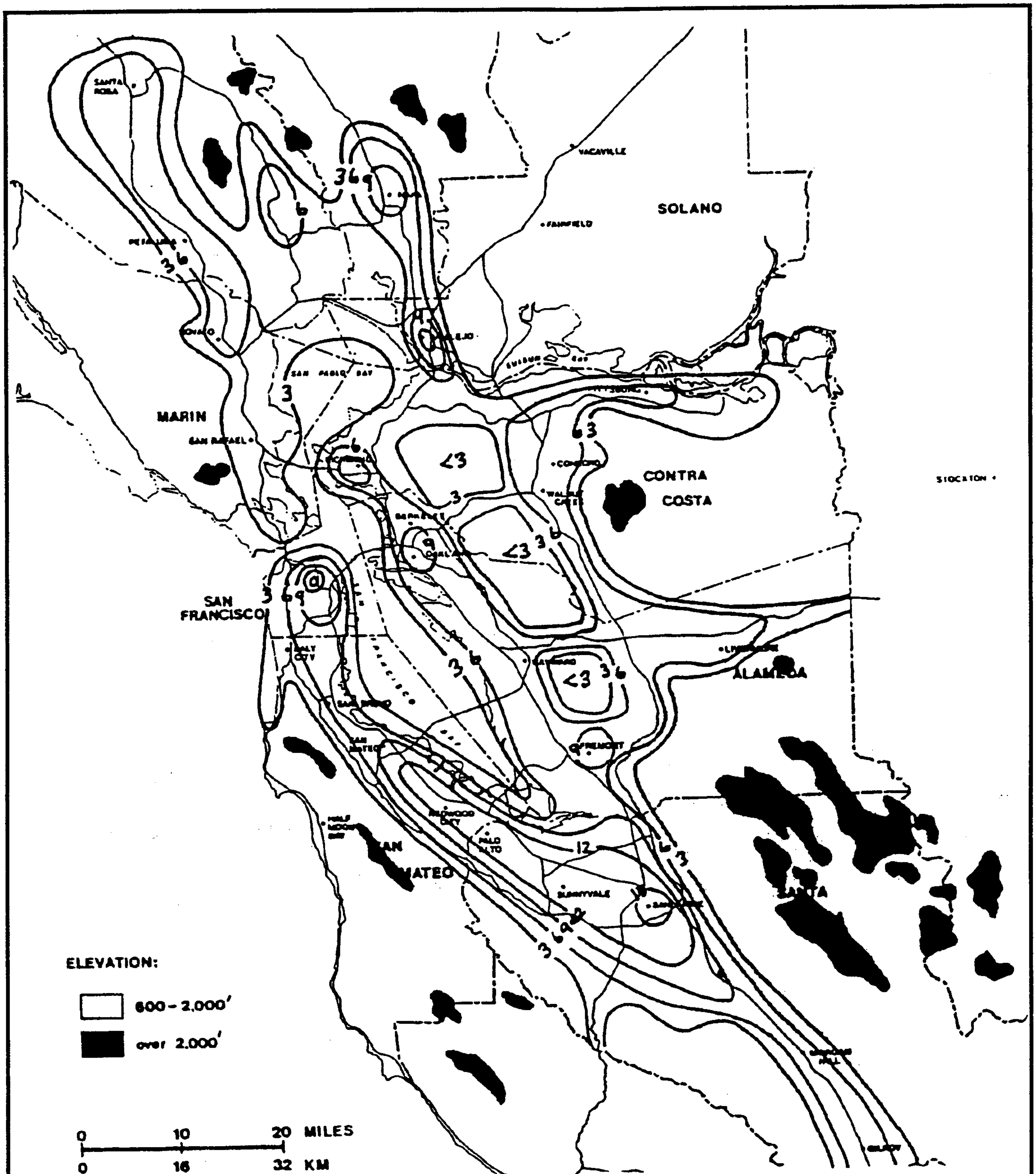
9. Metropolitan Transportation Commission Staff, "Project Sponsor Guidelines for CO Impact Assessments Required for Small Projects per EPA/FHWA Interim Guidance", MTC, September 15, 1993.

10. US EPA, Air Quality: Transportation Plans, Programs, and Projects; Federal or State Implementation Plan Conformity; Rule, US EPA, Federal Register, November 24, 1993.

APPENDICES

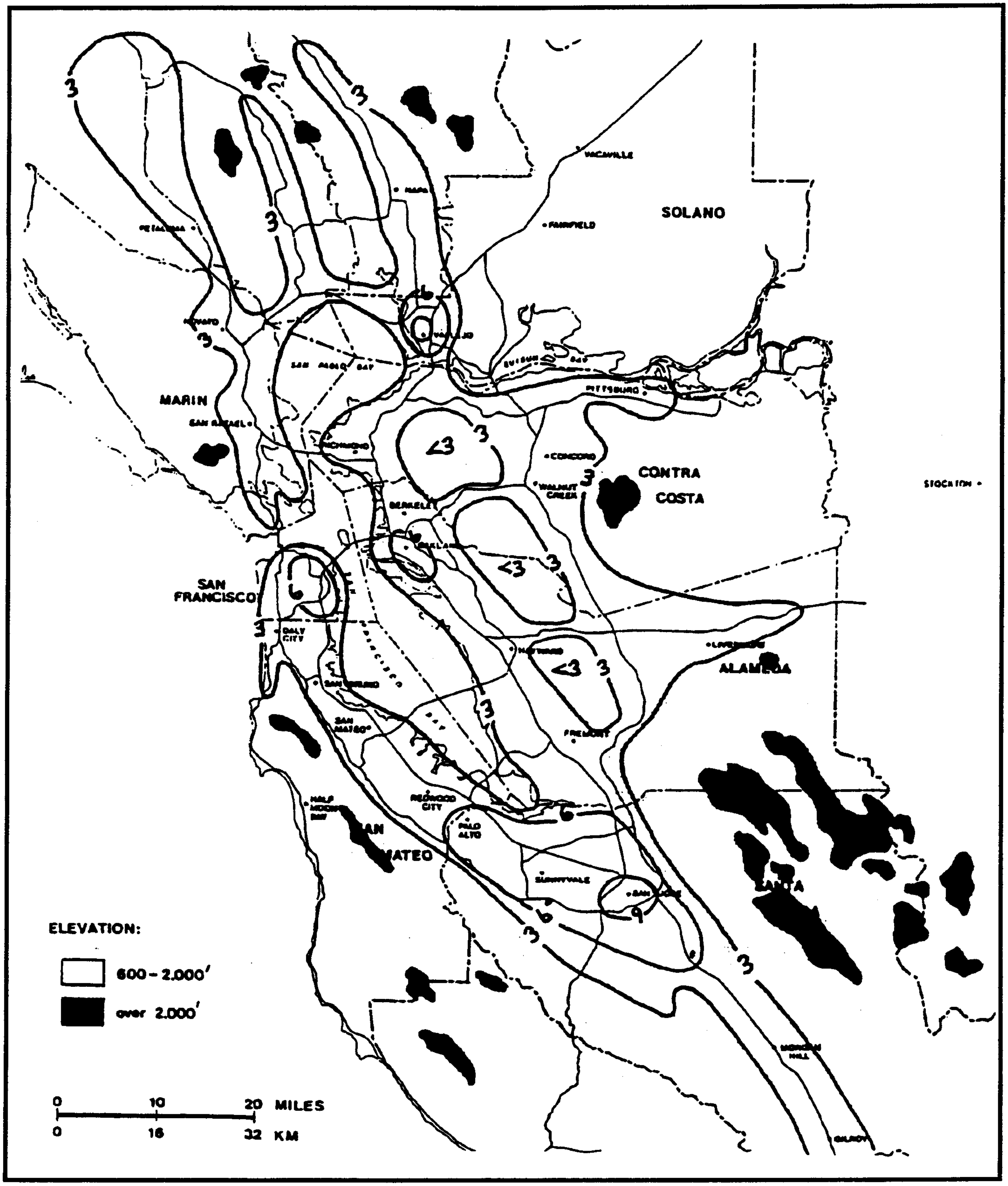
Appendix A	CO Isopleth Maps and Rollback Factors
Appendix B	Equipment
Appendix C	Site Data
Appendix D	OBSMAX Analysis of Site Data
Appendix E	BAAQMD Data -- CO Concentrations
Appendix F	Site Data -- Traffic
Appendix G	Permits to Enter
Appendix H	Letter to Resident at Camden site
Appendix I	Enlarged Sample of Graphic Site Comparison Graph

Carbon Monoxide -- One-Hour Background Values -- 1989



Revised August 1991

Carbon Monoxide -- Eight-Hour Background Values -- 1989



Revised August 1991

After the 1989 carbon monoxide background concentration has been determined. estimates of any year to 2010 can be made using the factor in Table V-B-2. For the year desired, multiply the 1989 concentration times the appropriate factor.

TABLE

Fraction of aggregate CO 1989 emissions expected to be emitted from 1990 to 2010.*

Year	Fraction
1989	1.00
1990	.97
1991	.93
1992	.83
1993	.80
1994	.77
1995	.74
1996	.71
1997	.68
1998	.66
1999	.63
2000	.61
2001	.60
2002	.59
2003	.58
2004	.57
2005	.56
2006	.55
2007	.54
2008	.53
2009	.52
2010	.51

* Based on estimates of carbon monoxide emissions from seasonal (winter) emission inventories for the Bay Area.

EQUIPMENT

SCL-85/Camden Ave. Site# 001

- Dasibi Environmental Corp. Model 3003 Serial #065 (CT#891428)
  Gas Filter Correlation CO Analyzer (manual calibration)
    US EPA designated reference method RFCA-0488-067, April 1988
    Approved range 0-50 ppm. Accuracy ± 0.1 ppm.
- Dasibi Environmental Corp. Model 8003 Data Acquisition System
- Dasibi Environmental Corp. Model 8010 Data Pack Reader
- 28 CF cylinder CO span gas ser. #FF32076, 46.0 ppm, for calibrating the Dasibi 3003
- Electrical surge protector
- Tygon tubing

SCL-280/De Anza Blvd. Site# 002

- Dasibi Environmental Corp. Model 3003 Serial #008
  Gas Filter Correlation CO Analyzer (manual calibration)
    US EPA designated reference method RFCA-0488-067, April 1988
    Approved range 0-50 ppm. Accuracy ± 0.1 ppm.
- Dasibi Environmental Corp. Model 8003 Data Acquisition System
- Dasibi Environmental Corp. Model 8010 Data Pack Reader
- 28 CF cylinder CO span gas ser. #FF01262, 46.0 ppm, for calibrating the Dasibi 3003
- Electrical surge protector
- Tygon tubing

Shared Equipment

- Epson NB3 MDSDOS 386 notebook computer ser. #35JV003370 (CS2714)

Metered Ramp Carbon Monoxide Concentrations

Location: CAMDEN
Site #: 001
Year: 1994
Units: ppm
Month: November

HOUR

DAY	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	N	MEAN
1																										
2																										
3																										
4																										
5																										
6																										
7																										
8																										
9																										
10													1.0	1.0	1.0	1.3	1.5	1.5	2.5	3.1	1.7	1.4	1.3	1.7	12	1.6
11	2.1	1.2	1.1	0.6		0.4	0.9	1.0	1.7	2.4	3.2	1.4	1.3	1.2	1.1	0.9	1.4	2.1	2.2	2.1	1.9	2.0	2.5	2.9	23	1.6
12	1.9	1.5	0.7	1.1	0.6	0.5	0.5	1.1	1.2	0.5	0.9	1.5	1.5	1.2	1.4	1.1	1.4	1.5	2.3	2.2	2.2	1.8	1.5	2.1	24	1.3
13	1.9	2.0	1.3	1.7	1.1	0.7	0.5	0.6	1.2	1.6	1.1	0.9	0.8	1.0	0.7	0.7	0.9	1.4	2.0	2.3	2.4	2.2	1.0	2.0	24	1.3
14	1.2	1.3		0.8	0.6	0.7	0.7	1.2	2.7	2.3	1.6	1.4	1.4	1.7	1.4	1.4	1.2	2.3	1.5	1.6	2.2	1.4	1.5		22	1.5
15	0.5						1.2	2.0	2.4	0.4		0.5	0.6	0.5	0.6	0.6	0.7	0.8	1.3	2.4	3.2	2.9	2.1	1.3	18	1.3
16	1.5	1.4	0.9	0.6	0.9	1.1	1.1	2.4	4.3	3.0	1.6	1.1	1.2	1.6	1.3	1.2	1.4	1.5	2.0	2.6	1.8	1.9	1.5	1.2	24	1.6
17	1.5	0.9	0.7	0.6	0.6	0.6	0.7	1.2	1.7	1.5	1.8	1.6	1.3	1.0	1.0	1.1	1.4	1.4	1.6	1.6	1.5	1.3	0.9	1.0	24	1.2
18	0.7	0.8	0.9	0.9	0.8	0.8	0.9	1.9	4.1	2.4	1.8	1.0	1.0	1.0	0.9	1.0	1.1	1.4	2.0	2.4	2.3	2.4	2.1	1.8	24	1.5
19	1.4	1.4	1.1	0.8	0.6	0.4	0.5	0.8	1.6	1.7	1.3	1.4	1.2	1.2	1.4	1.3	1.6	1.9	2.8	2.6	2.1	2.0	1.3	1.7	24	1.4
20	0.8	0.7	1.2	1.1	0.8	0.4	0.7	0.8	1.1	0.7	2.0	1.6	1.8	1.6	1.2	1.2	1.3	1.9	2.1	1.9	1.8	1.8	2.0	1.9	24	1.4
21	0.9	0.7	0.5	0.5	0.5	0.5	0.7	1.5	2.6	2.5	1.7	1.4	1.5	1.3	1.2	1.4	1.5	1.8	3.0	3.5	3.2	3.2	2.2	2.4	24	1.7
22	2.5	2.7	2.2	1.4	0.7	0.5	0.9	2.0	2.5	4.7	2.8	1.6	1.4	1.2	1.3	1.5	1.8	2.5	2.9	2.9	1.9	2.3	2.1	3.0	24	2.1
23	2.7	2.2	0.8	0.8	0.9	1.0	1.6	2.7	3.8	4.1	1.7	2.2	2.3	1.9	1.9	2.0	2.2	2.8	3.7	3.3	3.3	4.1	3.0	2.2	24	2.4
24	2.2	1.9	2.0	1.0	0.8	0.9	1.2	1.3	0.8	0.9	1.6	1.6	2.4	2.3	1.8	1.8	2.6	2.6	2.4	1.9	1.5	2.1	1.4	0.5	24	1.6
25	0.4	0.4	0.5	0.4	0.4	0.4	0.8	1.0	1.1	1.0	0.8	1.4	1.2	1.7	1.1	1.0	1.0	1.4	1.3	1.8	2.0	1.3	1.1	0.8	24	1.0
26	0.6	0.7	0.6	0.5	0.4	0.3	0.3	0.5	0.9	1.2	1.2	1.1	0.9	1.0	1.0	1.0	1.1	1.3	2.4	2.3	1.5	1.5	2.1	3.0	24	1.1
27	1.8	0.7							0.4	0.4	0.4	0.4	0.6	1.0	1.0	0.5	0.8	0.9	1.0	0.5	1.0	0.5	0.5	0.6	18	0.7
28	1.0	0.8	0.6	0.6	0.5	0.4	0.7	1.3	1.9	2.0	1.1	0.9	0.9	0.9	0.9	0.9	1.3	1.6	1.9	1.5	1.3	1.3	1.6	1.8	24	1.2
29	0.7							2.1	1.8	1.6	1.8	1.7	1.5	1.3	1.2	1.4	1.6	2.1	3.5	2.4	1.7	1.9	1.3	1.3	18	1.7
30	0.9	0.6	0.7	0.9	0.8	0.7	1.0	2.2	3.3	5.5	2.7	1.7	1.4	1.4	1.8	1.5	1.7	2.5	4.1	3.7	3.6	3.5	1.9	2.5	24	2.1

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	N	MEAN
N	20	18	16	17	16	17	18	19	20	20	19	20	21	21	21	21	21	21	21	21	21	21	21	20	471	
MN	1.4	1.2	1.0	0.8	0.7	0.6	0.8	1.5	2.1	2.0	1.6	1.3	1.3	1.3	1.2	1.2	1.4	1.8	2.3	2.3	2.1	2.0	1.7	1.8	471	
MAX	2.7	2.7	2.2	1.7	1.1	1.1	1.6	2.7	4.3	5.5	3.2	2.2	2.4	2.3	1.9	2.0	2.6	2.8	4.1	3.7	3.6	4.1	3.0	3.0		5.5

Metered Ramp Carbon Monoxide Concentrations

Location: CAMDEN
Site #: 001
Year: 1994
Units: ppm
Month: December

HOUR

DAY	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	N	MEAN
1	2.4	1.5	1.2	1.2	1.1	1.0	1.2	2.7	5.1	4.4	3.3	1.5	1.2	1.1	1.0	1.3	1.3	1.8	2.9	2.9	2.6	2.1	2.6	1.7	24	2.0
2	1.5	0.6	0.7	0.4	0.5	0.8	1.4	2.3	3.2	2.7	1.8	1.5	1.4	1.4	1.2	1.1	1.8	1.7	2.3	2.1	1.3	1.1	1.0	1.9	24	1.5
3	1.8	1.2	1.0	0.7	0.8	0.5	0.4	0.5	0.4	0.4	0.5	0.7	0.5		0.5	0.7	0.6	0.6	0.4	0.4	0.5	0.6	0.9	1.2	23	0.7
4	0.5	0.3	0.3	0.5				0.5	0.7	0.8	1.2	1.5	1.6	1.7	1.7	1.6	1.5	1.9	1.7	1.3	1.1	0.7	0.7	0.7	21	1.1
5	0.7	0.6	0.6	0.4	0.4	0.4	0.7	0.7	1.9	1.8	1.4	1.0	1.2	1.2	1.1	1.2	1.5	1.8	1.7	1.5	1.8	1.8	1.8	1.0	24	1.2
6	0.6	0.6				0.4	0.4	0.5	1.3	2.8	1.0	0.6	0.8	1.1	0.8	0.9	1.1	1.6	2.3	2.5	2.3	2.2	1.9	1.2	21	1.3
7	0.9	0.8	0.7	0.7	0.5	0.5	0.8	1.9	3.7	5.9	4.1	1.5	1.0	0.8	0.8	1.0	1.3	1.7	1.9	2.3	2.8	2.1	1.5	1.1	24	1.7
8	0.8	0.7	0.6	0.4				1.3	2.5	1.6	1.0	1.1	0.9	0.8	0.9	1.1	1.3	1.9	2.9	2.6	2.7	1.4	1.3	1.3	21	1.4
9	1.3	1.3	1.7	1.1		0.5	1.0	1.9	2.9	5.2	3.6	2.7	1.7	1.4	1.6	1.5	1.7	2.2	1.7	2.1	1.3	0.9	3.3	1.9	23	1.9
10	2.2	1.1	1.4	1.7	0.9		0.8	1.1	1.8	2.2	2.4	2.3	1.9	1.6	1.9	2.3	2.6	2.4	2.6	2.1	2.1	2.5	1.4	1.5	23	1.9
11	1.0	0.7	0.6	0.6	0.4	0.4	0.5		0.4	0.6	1.3	1.0	0.7	1.0	1.1	0.9	0.6	0.7	0.8	0.5	0.5	0.5	0.9		22	0.7
12				0.4	0.4	0.5	0.6	1.0	1.1	0.8	0.6	0.5	0.6	1.2	1.2		0.6	0.6	0.8	0.7	1.0	1.1	1.3	0.9	20	0.8
13	0.6	0.5		0.3				0.7	1.6	1.7	1.1	1.2	0.5	0.6	0.6	1.3	1.6	2.1	2.9	1.3	1.1	1.1	1.0	1.1	20	1.1
14	0.5												1.8	0.8	0.7	0.8	1.1	1.4	1.8	2.0	1.5	2.3	2.2	2.1	13	1.5
15	1.9	1.7	1.4	1.1	0.8	1.1	1.5	2.6	3.7	3.8	1.5	1.7	1.4	1.5	1.6	1.4	2.3	2.8	3.5	3.0	3.5	2.6	2.1	1.5	24	2.1
16	2.2	2.1	1.4	1.2	0.8	1.2	1.5	2.5	3.9	3.7	3.9	2.5	2.2	2.6	2.2	2.0	2.1	2.7	3.8	3.5	3.5	2.7	1.9	3.6	24	2.5
17	2.9	2.5	2.5	2.3	2.1	1.6	1.8	1.9	2.2	2.7	2.4	3.1	2.4	2.2	2.2	2.3	2.3	2.4	2.7	3.0	2.9	2.8	2.0	1.8	24	2.4
18	1.4	1.3	1.2	1.2	1.2	1.1	1.2	1.3	1.2	1.1	1.7	1.6	1.4	1.5	1.5	1.3	1.4	1.9	2.5	2.7	3.1	3.3	4.4	3.8	24	1.8
19	3.1	2.1	1.7	1.1	0.8	0.8	1.4	1.3	1.8	1.5	1.6	2.3	2.3	2.6	3.0	2.7	3.0	3.5	4.0	3.7	3.7	3.6	2.9	3.3	24	2.4
20	2.4	1.8	1.6	1.5	1.2	1.2	1.3	2.7	3.8	3.2	2.3	2.3	2.5	2.1	2.3	2.5	2.7	3.2	3.6	3.0	2.7	2.8	3.0	3.2	24	2.5
21	2.9	1.8	1.4	1.5	1.4	1.4	1.3	2.5	2.3	1.8	2.5	2.7	2.0	1.9	2.1	2.4	2.8	3.1	3.9	3.3	2.9	2.2	3.0	3.0	24	2.3
22	3.0	1.8	2.3	1.7	1.4	1.3	1.9	3.2	4.6	6.1	4.6	3.6	2.4	2.1	2.0	2.1	2.1	2.8	3.5	3.0	3.0	2.9	2.6	2.1	24	2.8
23	3.1	1.8	2.2	1.4	0.7	1.3	1.3	1.7	1.6	2.1	2.9	3.5	3.3	3.2	3.4	3.5	3.6	3.3	2.7	2.5	2.2	3.4	2.2	0.7	24	2.4
24	1.0	0.9	0.7		0.6	0.5	0.5	0.5	1.2	1.4	1.3	1.6	1.7	1.0	1.0	0.9	0.9	1.2	1.4	1.1	1.1	1.0	1.2	1.5	23	1.1
25	1.8	1.2	0.9	0.8	0.7	0.5	0.5	0.8	1.0	1.3	0.9	0.9	0.8	0.8	0.8	0.9	1.0	1.2	2.0	2.4	2.9	3.6	3.8	3.8	24	1.5
26	3.0	2.6	2.1	1.4	1.4	1.2	1.2	1.5	2.0	2.4	2.7	2.0	1.5	1.7	1.9	1.6	1.6	1.9	2.9	3.4	3.6	3.6	3.2	2.9	24	2.2
27	3.1	1.6	1.3	1.2	0.6	0.8	1.2	2.4	3.8	3.0	2.4	2.4	1.9	1.4	1.8	1.6	2.2	3.3	3.7	4.2	3.0	1.5	0.8	0.9	24	2.1
28	0.6	0.6	0.6	0.8	0.7	0.6	1.0	1.7	2.8	2.1	1.5	1.9	1.5	1.2	1.2	1.2	1.5	1.8	2.5	2.4	2.4	1.4	2.7	1.7	24	1.5
29	2.8	1.6	1.6	1.2	0.4	0.5	0.6	1.3	3.4	2.9	1.6	1.4	1.2	0.9	1.3	1.1	1.2	1.7	1.4	1.5	1.3	1.6	1.5	1.8	24	1.5
30	1.8	1.5	0.9	0.8	1.1	0.7	1.0	1.5	2.2	3.5	1.6	2.0	1.9	1.7	1.3	1.6	1.0	0.9	1.8	3.2	2.9	1.3	1.5	0.8	24	1.6
31	0.5	0.6	0.6	0.6	0.5	0.9	0.7	0.9	0.4	0.5	0.5	1.4	1.5	1.8	1.9	2.1	2.3	2.8	3.1	3.0	4.1	3.9	2.6	1.9	24	1.6
N	30	29	27	28	25	26	27	29	30	30	30	30	31	30	31	30	31	31	31	31	31	31	31	30	710	
MN	1.7	1.3	1.2	1.0	0.9	0.8	1.0	1.6	2.3	2.5	2.0	1.8	1.5	1.5	1.5	1.6	1.7	2.0	2.4	2.4	2.3	2.1	2.0	1.9	710	
MAX	3.1	2.6	2.5	2.3	2.1	1.6	1.9	3.2	5.1	6.1	4.6	3.6	3.3	3.2	3.4	3.5	3.6	3.5	4.0	4.2	4.1	3.9	4.4	3.8		6.1

Metered Ramp Carbon Monoxide Concentrations

Location: CAMDEN
Site #: 001
Year: 1995
Units: ppm
Month: January

HOUR

DAY	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	N	MEAN
1	1.6	2.0	1.8	1.9	1.9	1.4	0.8	0.7	1.0	1.5	1.2	1.4	1.5	0.6	0.5	1.0	1.2	1.7	2.1	2.4	2.6	2.8	2.5	1.6	24	1.6
2	1.3	1.5	1.1	1.1	0.9	1.0	0.8	0.9	1.0	1.4	1.9	0.5	0.5	0.5	0.6	0.5	0.5	0.5	0.6	0.6	0.5	0.5	0.6	1.1	24	0.9
3	1.3	0.5	0.5	0.5	0.4	0.5	0.4	0.6	0.7	1.0	1.0	0.5	0.7	0.6	0.6	0.7	0.8	0.8	0.9	1.1	1.3	0.7	0.5	0.5	24	0.7
4	0.4	0.4	0.4	0.4			0.6	0.9	1.0	0.6	0.8	0.8	0.9	1.0	1.1	0.9	1.6	1.7	2.1	1.5	1.3	1.0	1.0	1.2	22	1.0
5	1.2	0.9	0.6	0.7	0.5	0.7	1.1	0.9	2.2	2.2	2.1	0.9	0.9	0.9	0.9	1.1	1.5	1.6	2.4	2.1	1.6	1.6	1.1	0.7	24	1.3
6	0.6	0.5	0.5	0.4	0.4	0.5	0.5	0.7	0.7	1.8	0.5	0.4	0.8	1.1	0.8	0.5	0.5	0.8	0.9	0.5	0.5	0.6	0.6	0.6	24	0.7
7	0.5	0.6	0.6	0.5	0.4	0.4	0.5	0.5	0.8	1.5	1.0	0.9	0.9	1.0	0.7	0.7	0.7	0.6	0.7	0.9	0.7	0.6	0.5	0.5	24	0.7
8	0.7	0.8	0.5	0.6	0.5	0.5	0.6	0.6	0.8	0.9	1.0	1.1	0.9	0.6	0.6	0.6	0.7	0.8	1.3	0.7	0.6	0.6	0.6	0.5	24	0.7
9	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.6	0.7	0.8	0.6	0.6	0.6			0.7	0.6	0.5						17	0.6
10													0.7	0.6	0.5	0.6	0.7	0.8	0.8	1.2	1.0	1.0	0.9	0.6	12	0.8
11	0.4	0.4	0.5		0.5	0.7	0.6	0.6	1.4	0.7		0.4					0.4		0.4	0.5	0.5	0.4	0.4	0.4	17	0.5
12						0.4	0.3	1.5	2.6	2.5	1.4	0.8	0.7	0.5	0.7	0.5	1.6	1.2	0.7	0.8	0.9	0.8	1.4	1.2	19	1.1
13	0.9	0.5	0.4	0.4	0.4	0.5	0.4	0.5	0.6	0.6	0.5	0.5		0.6	0.7	0.7	0.7	0.5	0.5	0.5	0.5	0.5	0.5	0.6	23	0.5
14	0.6	0.6	0.5	0.6	0.5	0.7	0.9	0.8	1.1	1.0	1.2	0.7	0.8	1.0	0.9	0.9	1.0	1.6	1.2	1.3	1.3	1.1	0.7	1.0	24	0.9
15	0.6	0.7	0.8	0.5	0.5	0.6	0.5	0.4	0.6	1.0	1.4	1.4	1.2	1.2	1.2	0.8	0.8	1.1	1.9	1.9	1.6	1.4	0.9	0.6	24	1.0
16	0.5	0.6	0.5	0.5	0.6	0.5	0.6	0.5	2.0	1.0	0.7	1.1	1.3	1.2	1.0	1.1	1.0	1.3	1.9	1.7	1.9	2.0	1.4	1.2	24	1.1
17	1.3	1.2	1.2	0.8	0.8	0.8	0.6	2.2	3.9	1.7	1.6	1.1	1.3		1.1	1.1	1.6	1.7	1.3	2.4	1.8	1.0	2.2	1.8	23	1.5
18	1.6	0.8	1.1	0.9	0.7	0.9	0.8	1.6	4.0	4.2	1.1	0.9	1.1	1.0	1.0	1.1	1.1	1.2	2.4	2.8	3.1	2.2	2.0	1.6	24	1.6
19	1.4	2.4	1.5	1.2	0.7	1.0	1.5	2.1	2.1	2.5	2.2	1.8	1.6	1.9	1.9	2.0	2.1	3.1	2.2	2.1	2.6	3.0	3.0	2.7	24	2.0
20	1.2	1.8	1.3	1.0	0.8	1.0	0.8	3.0	4.8	3.9	0.6	0.5	0.5	0.5	0.5	0.5	0.5	0.7	1.1	0.5	0.5	0.5	0.5	0.5	24	1.1
21	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.7	1.7	1.3	0.7	0.6	0.7	0.6	0.6	0.6	0.6	0.8	0.8	0.8	0.5	0.5	0.6	0.5	24	0.6
22	0.5	0.4		0.5	0.4		0.4	0.4	0.4	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.6	0.8	0.8	0.6	0.6	0.6	0.5	0.5	22	0.5
23	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.6	0.7	0.5	0.5	0.5	0.5	0.5	0.5	0.6	0.6	0.5	0.6	0.6	0.5	0.6	0.5	24	0.5
24	0.5	0.5	0.4	0.5	0.4	0.5	0.7	0.6	0.9	0.6	0.5	0.5	0.6	0.5	0.6	0.6	0.8	1.2	1.1	1.4	2.1	1.9	0.5	0.6	24	0.8
25	0.6	0.5	0.5	0.5	0.5	0.7	1.1	2.3	2.4	2.2	1.9	1.5	1.3	1.1	1.2	1.2	1.4	1.5	1.9	2.3	2.6	2.3	2.1	1.3	24	1.5
26	0.8	0.9	0.6	0.5	0.5	0.5	0.5	0.7	0.9	1.2	0.7	0.9	1.4	0.9	0.9	0.8	1.5	1.0	1.9	1.6	1.1	1.6	1.1	1.3	24	1.0
27	1.0	0.7	0.8	0.6	0.5	0.5	0.6	0.5	0.7	0.9	0.8	0.9	0.8	0.6	0.7	0.9	1.2	1.9	1.6	1.4	1.0	0.8	0.8	0.8	24	0.9
28	0.6	0.8	1.0	0.7	0.6	0.6	0.5	0.8	1.3	1.3	0.7	0.8	1.1	1.3	1.6	1.2	1.2	1.9	2.0	2.4	2.5	1.5	1.4	1.5	24	1.2
29	1.7	1.4	0.9	1.1	1.0	0.9	0.9	1.5	0.9	0.8	1.1	1.5	1.7	1.5	1.4	1.5	1.4	1.2	1.6	1.5	2.4	2.8	2.6	1.4	24	1.4
30	1.3	1.3	1.4	0.8	0.8	1.0	1.0	1.7	1.7	1.0	1.9	1.7	1.4	1.9	2.0	2.3	2.3	2.3	3.5	3.2	3.5	3.3	3.3	2.8	24	2.0
31	2.3	2.0	1.4	1.1	1.0	1.2	1.6	2.2	3.7	4.1	2.9	2.5	1.8	2.0		0.9	1.4	1.6	2.1	2.5	2.4	3.6	2.7	3.0	23	2.2
N	29	29	28	28	28	28	30	30	30	30	29	30	29	29	28	29	31	30	31	30	30	30	30	30	706	
MN	0.9	0.9	0.8	0.7	0.6	0.7	0.7	1.0	1.6	1.5	1.1	0.9	1.0	0.9	0.9	0.9	1.1	1.2	1.4	1.5	1.5	1.4	1.3	1.1	706	
MAX	2.3	2.4	1.8	1.9	1.9	1.4	1.6	3.0	4.8	4.2	2.9	2.5	1.8	2.0	2.0	2.3	2.3	3.1	3.5	3.2	3.5	3.6	3.3	3.0		4.8

Metered Ramp Carbon Monoxide Concentrations

Location: Apple Plant at DeAnza Blvd.
Site #: 002
Year: 1994
Units: ppm
Month: December

HOUR

DAY	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	N	MEAN
1																										
2																										
3																										
4																										
5		2.0	2.2	2.1	2.0	2.1	2.2	2.4	2.7	2.8	3.7	2.7	1.8	1.7	2.0	2.1	3.7	4.0	5.3	1.9	2.7	1.6	1.3	1.3	23	2.4
6	1.1	0.9	1.0	0.9	0.9	0.9	0.9	0.9	1.3	2.0	2.3	1.8	1.7	1.5	1.2	1.7	3.2	4.4	5.4	5.3	3.6	3.1	2.6	2.7	24	2.1
7	2.8	1.9	1.6	1.7	1.4	1.4	1.4	1.6	3.4	4.6	3.1	1.9	1.8	1.6	1.6	1.9	3.8	4.1	5.2	4.6	4.0	3.4	3.3	3.2	24	2.7
8	1.9	1.9	1.7	2.0	1.6	1.6	2.2	3.1	2.9	3.1	2.6	1.9	1.8	2.0	2.1	2.2	4.1	4.7	4.4	3.4	3.1	2.4	2.3	3.1	24	2.6
9	3.5	2.5	2.5	2.4	2.0	2.0	2.6	3.9	3.5	5.5	3.7	2.8	2.8	2.7	2.6	2.5	4.2	5.3	4.1	3.6	2.7	2.5	3.3	3.2	24	3.2
10	3.5	3.5	3.3	3.1	2.5	1.9	1.9	2.4	3.4	3.0	3.5	2.6	2.3	2.6	2.8	2.9	3.1	4.0	4.0	2.8	2.2	3.0	3.0	3.4	24	2.9
11	2.7	2.7	2.0	1.8	1.8	1.5	1.4	1.3	1.4	1.4	1.2	1.3	1.1	0.9	0.7	0.7	0.8	1.0	1.1	0.8	0.8	0.8	0.8	0.7	24	1.3
12	0.7	0.7	0.7	0.7	0.7	0.8	0.9	0.9	1.9	2.4	1.5	1.1	1.0	1.4	0.9	1.1	1.0	2.5	1.3	1.4	1.2	2.0	1.0	1.0	24	1.2
13	1.0	0.8	0.9	0.9	0.9	0.8	0.8	1.0	1.4	2.1	1.7	1.3	0.8	1.0	0.3	0.5	0.8	1.3	1.9	2.2	1.6	1.7	1.9	1.6	24	1.2
14	1.7	1.4	1.1	0.7	0.6	0.5	0.5	0.6	1.1	0.9	0.8	0.7	0.5	0.5	0.5	0.4	1.4	2.0	2.1	1.3	2.1	2.2	2.3	1.9	24	1.2
15	2.0	1.7	0.9	0.8	0.9	0.7	1.0	2.3	3.3	2.3	1.2	1.3	1.3	0.9	1.7	1.5	3.6	4.6	5.6	5.9	3.6	2.3	1.9	2.3	24	2.2
16	1.3	1.1	0.9	0.9	1.0	1.1	1.2	1.4	2.8	5.0	3.3	2.3	2.3	2.8	2.6	2.1	3.9	5.2	6.2	3.0	2.6	1.6	2.0	2.1	24	2.4
17	2.0	1.9	1.6	1.5	1.1	1.1	1.2	1.6	2.5	2.7	2.0	1.8	1.6	1.4	1.8	1.7	1.5	1.7	2.7	3.2	2.7	1.7	1.3	1.5	24	1.8
18	1.3	1.2	1.0	1.0	1.1	0.9	0.9	0.9	1.0	1.1			1.2	1.4	1.4	1.1	1.3	2.0	2.6	2.9	2.0	2.2	2.1	1.8	22	1.5
19	1.6	2.1	1.4	0.9	0.7	0.6	0.5	0.8	0.9	1.1	1.3	1.9	1.9	2.4	1.8	2.2	4.3	4.7	5.1	4.9	2.9	2.8	2.7	2.6	24	2.2
20	2.1	1.2	1.0	1.2	0.9	1.3	1.7	2.7	3.3	2.8	2.8	2.2	1.5	1.5	1.7	1.7	2.9	3.9	5.3	4.9	2.8	2.9	2.5	2.5	24	2.4
21	2.1	1.3	1.0	1.3	1.2	1.0	1.4	2.2	3.3	3.2	2.8	2.2	1.9	2.0	1.9	1.9	3.1	4.2	4.8	3.1	2.7	2.5	2.8	2.9	24	2.4
22	2.3	2.1	1.9	1.5	1.3	1.5	2.1	2.5	4.3	4.1	3.4	2.0	2.0	2.2	2.5	2.4	4.1	5.3	6.1	5.4	3.7	3.2	2.9	2.9	24	3.0
23	2.8	2.6	2.1	1.9	1.7	2.1	2.2	2.4	2.4	3.5	3.3	3.2	3.4	4.0	4.2	3.7	5.2	4.1	3.6	3.5	2.8	1.2	0.5	0.5	24	2.8
24	1.8	0.6	0.4	0.3	0.3	0.3	0.3	0.4	0.5	1.2	1.6	1.7	1.2	1.2	0.8	0.8	1.0	1.6	1.4	1.5	1.1	1.1	1.2	1.5	24	1.0
25	1.4	1.3	1.2	0.8	0.8	0.6	0.7	1.2	1.5	1.3	0.9	0.8	0.9	1.0	0.9	1.0	1.1	1.4	1.9	1.9	2.1	2.7	2.4	2.6	24	1.4
26	2.8	2.3	2.0	1.5	1.5	1.3	1.2	1.4	2.7	2.1	1.8	1.5	2.1	2.3	1.7	1.8	2.7	1.9	2.8	2.0	1.5	1.3	1.5	1.9	24	1.9
27	1.6	1.5	1.3	1.6	1.1	1.3	1.6	1.9	2.8	3.8	2.5	2.0	2.2	1.9	2.6	3.1	5.0	3.5	3.0	3.6	3.4	1.2	0.3	0.4	24	2.2
28	0.5	0.2	0.1	0.7	0.3	0.4	0.8	1.3	2.1	2.2	1.5	1.1	1.1	1.0	0.9	1.1	2.2	2.1	4.3	2.8	1.3	1.8	1.4	1.5	24	1.4
29	0.8	0.7	1.4	1.2	0.9	0.7	0.9	1.5	2.3	2.5	1.6	1.3	1.2	1.2	1.4	1.2	2.4	2.5	1.5	1.3	1.6	1.6	1.6	2.3	24	1.5
30	1.8	1.9	2.4	1.7	1.2	1.5	1.5	1.7	2.9	3.1	2.5	1.7	2.0	1.7	1.4	0.6	0.8	0.9	1.2	1.0	2.9	2.7	2.8	3.5	24	1.9
31	2.5	1.8	1.3	1.0	0.9	0.9	1.1	1.1	0.9	0.9	0.9	1.2	1.9	2.2	2.1	2.3	2.4	2.3	1.8	3.1	2.9	2.3	1.9	1.9	24	1.7

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23		
N	26	27	27	27	27	27	27	27	27	27	26	26	27	27	27	27	27	27	27	27	27	27	27	27	645	
MN	1.9	1.6	1.4	1.3	1.2	1.1	1.3	1.7	2.3	2.6	2.2	1.8	1.7	1.7	1.7	1.7	2.7	3.2	3.5	3.0	2.5	2.1	2.0	2.1	645	
MAX	3.5	3.5	3.3	3.1	2.5	2.1	2.6	3.9	4.3	5.5	3.7	3.2	3.4	4.0	4.2	3.7	5.2	5.3	6.2	5.9	4.0	3.4	3.3	3.5		6.2

Metered Ramp Carbon Monoxide Concentrations

Location: Apple Plant at DeAnza Blvd.
Site #: 002
Year: 1995
Units: ppm
Month: January

HOUR

DAY	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	N	MEAN
1	1.8	1.8	1.8	1.8	1.7	1.1	0.7	1.5	1.9	1.8	1.5	1.4	1.4	1.1	1.5	1.0	1.1	1.6	1.8	1.3	1.9	1.9	1.5	1.3	24	1.5
2	1.2	1.1	0.9	0.7	0.5	0.6	0.6	0.6	0.7	0.7	1.2	1.9	0.7	0.2	0.5	0.1	0.3	0.2	0.5	0.4	0.3	0.4	0.5	0.3	24	0.6
3	0.7							0.1	0.3	0.5	0.4			0.0	0.4	0.2	0.6	0.8	0.9	0.7	0.8	0.9	0.5	0.3	16	0.5
4	0.2	0.2	0.2	0.2	0.1	0.1	0.2	0.2	0.3	0.3	0.2	0.2	0.3	0.4	0.3	0.3	0.5	2.0	4.8	3.6	1.8	1.2	1.4	1.6	24	0.9
5	1.3	0.5	0.2	0.3				1.3	2.0	2.1	1.7	1.2	0.9	1.1	1.2	1.4	2.7	3.3	4.0	2.2	2.4	2.9	2.1	1.8	21	1.7
6	1.0	0.6	0.6	0.5	0.3	0.2	0.1	0.6	0.9	1.2	1.0	0.6	0.4	0.3	0.2	0.2	0.2	0.2	0.4	0.3	0.4	0.4	0.3	0.2	24	0.5
7	0.2	0.2	0.1	0.1	0.0			0.0	0.2	0.8															8	0.2
8																									0	0.0
9																									0	0.0
10															0.4	0.8	0.6	0.6	1.2	4.0	1.5	1.1	1.5	1.0	10	1.3
11	0.7	1.0	0.9	1.4	1.8	1.1	0.9	1.0	1.5	1.9	1.2	0.7	0.6	0.6	0.7	0.6	0.7	0.8	1.0	1.0	1.0	0.8	0.8	0.8	24	1.0
12	0.7	0.6	0.6	0.6	0.6	0.6	0.9	2.3	1.8	1.8	1.6	1.4	1.5	1.9	1.6	1.2	3.4	1.5	2.3	1.1	1.2	1.1	0.7	0.6	24	1.3
13	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.5	0.5	0.4	0.4	0.3	0.4	0.5	0.7	0.6	0.6	0.4	0.5	0.3	0.3	0.3	24	0.4
14	0.5	0.3	0.2	0.2	0.1	0.1	0.3	0.5	0.8	1.1	0.6	0.3	0.4	0.8	1.1	0.7	1.3	1.8	2.1	1.7	1.3	2.6	1.3	1.2	24	0.9
15	1.0	1.1	0.9	0.7	0.7	0.8	0.8	1.0	1.1	1.9	2.1	2.0	1.7	2.1	1.7	1.4	1.7	2.0	2.8	1.5	1.5	1.3	1.5	2.1	24	1.5
16	2.0	1.2	1.2	1.4	1.4	1.3	1.3	1.8	2.2	3.2	2.7	2.7	2.7	2.5	2.4	2.1	3.7	3.5	5.4	5.0	5.0	3.8	3.3	2.4	24	2.7
17	2.0	2.1	2.3	2.0	2.1	2.0	2.2	2.6	3.4	5.4	4.2	3.2	2.3	2.7	2.8	3.1	5.7	6.3	7.0	3.8	3.7	4.0	3.6	3.4	24	3.4
18	3.0	2.9	2.4	2.3	2.4	2.4	2.5	3.3	4.7	6.6	4.7	2.9	2.6	3.5	3.5	3.8	5.5	7.1	9.2	8.1	4.5	3.4	3.8	3.8	24	4.1
19	3.2	2.9	2.9	2.8	2.8	2.5	2.7	3.8	5.4	9.1	5.4	4.2	4.7	4.4	5.0	4.7	6.4	7.3	7.1	4.5	5.3	4.5	4.2	5.5	24	4.6
20	4.4	4.1	3.8	3.9	3.6	3.6	2.1	2.0	2.1	2.3	2.7	2.3	2.0	2.2	2.1	1.8	2.1	2.0	2.8	4.2	2.1	2.2	2.0	1.9	24	2.7
21	1.9	2.2	1.9	1.7	1.7	1.7	1.8	1.7	2.2	2.3	2.0	1.5	1.5	1.6	1.6	1.6	1.6	1.8	2.3	2.4	2.2	2.7	2.6	2.0	24	1.9
22	2.0	1.7	1.5	1.5	1.5	1.5	1.4	1.5	1.5	1.5	1.5	1.6	1.5	1.5	1.6	1.8	1.8	1.8	1.9	2.0	1.7	1.6	1.6	1.5	24	1.6
23	1.4	1.4	1.4	1.4	1.3	1.3	1.3	1.5	1.6	2.2	2.4	1.6	1.3	1.3	1.3	1.3	1.5	2.1	1.7	1.8	1.5	2.0	1.8	1.5	24	1.6
24	1.2	1.2	1.2	1.2	1.1	1.0	1.2	1.4	1.4	2.2	1.8	1.2	1.1	1.2	1.1	1.1	1.3	1.4	2.5	2.4	2.5	2.4	1.7	1.3	24	1.5
25	1.3	1.3	1.8	1.3	1.4	1.4	2.1	2.1	3.0	4.1	3.3	2.6	2.6	3.0	2.8	2.8	4.2	4.6	6.3	7.1	4.4	4.0	3.6	3.5	24	3.1
26	3.0	2.7	2.0	1.6	1.6	1.5	1.6	2.0	3.0	3.8	3.2	1.3	1.2	1.4	1.2	1.2	1.6	3.1	3.2	2.6	2.4	1.9	1.6	1.6	24	2.1
27	1.4	1.2	1.1	1.0	1.0	1.0	1.0	1.2	1.4	1.6	1.5	1.4	1.8	1.6	1.7	1.4	2.5	2.9	2.5	2.3	2.0	1.6	1.3	1.3	24	1.6
28	1.0	1.2	1.3	0.9	0.7	0.6	0.6	0.6	0.7	0.9	0.9	0.9	2.1	3.6	4.4	4.3	3.2	2.7	3.4	3.7	3.8	2.7	2.5	2.3	24	2.0
29	2.5	1.6	1.2	1.3	1.3	1.2	1.0	0.9	0.8	0.9	1.6	1.7	2.1	1.8	1.9	2.2	1.8	1.7	1.6	1.4	2.2	3.3	2.4	1.9	24	1.7
30	1.7	1.9	1.0	0.9	0.6	0.5	0.5	1.8	2.0	1.5	3.8	2.6	3.3	4.0	3.5	2.4	3.2	3.9	6.8	6.2	3.7	3.9	2.8	1.8	24	2.7
31	1.5	1.3	1.1	0.6	0.4	0.6	1.8	2.5	4.4	4.4	3.3	3.3	5.0	6.6	6.9	4.6	6.7	6.2	5.7	3.2	4.4	5.2	4.9	3.7	24	3.7
N	28	27	27	27	26	25	25	28	28	28	27	26	26	27	28	28	28	28	28	28	28	28	28	28	655	
MN	1.5	1.4	1.3	1.2	1.2	1.2	1.2	1.4	1.9	2.4	2.1	1.7	1.8	1.9	1.9	1.7	2.4	2.6	3.3	2.8	2.4	2.3	2.0	1.8	655	
MAX	4.4	4.1	3.8	3.9	3.6	3.6	2.7	3.8	5.4	9.1	5.4	4.2	5.0	6.6	6.9	4.7	6.7	7.3	9.2	8.1	5.3	5.2	4.9	5.5		9.2

AMBIENT AIR QUALITY SUMMARY PAGE: 1
OBSERVED MAXIMUM ANALYSIS
POLLUTANT: CARBON MONOXIDE

JOB DESCRIPTION: SCL-85
SITE CODE: 001
DATA FILE: CAMDEN WDATA
FROM: 11/10/94 TO: 2/1/95 NUMBER OF RECORDS: 84

OBSERVED MAXIMUMS:

TYPE	AVG.TIME (HRS.)	DAYS USED	VALUE (PPM)	DATE	TIME
DAILY	1	84	6.0	11/30/94	0800-0900
	8	84	3.6	12/19/94	1300-2100
MORNING	1	84	6.0	11/30/94	0800-0900
	8	71	3.6	12/22/94	0500-1300
MIDDAY	1	82	5.0	01/05/95	1500-1600
	8	79	3.4	12/23/94	0900-1700
EVENING	1	84	4.0	11/21/94	1800-1900
	8	77	3.6	12/19/94	1300-2100
NOCTURNAL	1	72	4.0	12/16/94	2200-2300
	8	72	2.8	12/16/94	2000-0400

```
AMBIENT AIR QUALITY SUMMARY            PAGE:  2
OBSERVED MAXIMUM ANALYSIS
POLLUTANT: CARBON MONOXIDE

JOB DESCRIPTION: SCL-85
SITE CODE: 001
DATA FILE: CAMDEN WDATA
FROM: 11/10/94  TO:  2/1/95   NUMBER OF RECORDS: 84


GRAPHICAL SUMMARY OF DAILY MAXIMUMS
```

```
RANKED RESULTS:

      6 + 1 1 1
        |       1 1 1 1 1
 CO   4 +8 8 8 8 8 8 8 8 8181818181 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
(PPM)   |                           8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8
      2 +
        |
      0 +---------+---------+---------+---------+---------+---------+
        0         5        10        15        20        25        30
                                   RANK
```

```
OBSERVED MAXIMUMS (*)
(I= INTERPOLATED VALUE)

                 1 HOUR                                        8 HOUR
      6 +       *                                    6 +
        |                                              |
 CO   4 +                 ....                CO     4 +              *****
(PPM)   |      . .      .    .               (PPM)   |          .***      ..
      2 +     .   .  ...    . ..                     2 +.      .....           ..
        |.....     ..                                  | .....
      0 +-----+-----+-----+-----+                    0 +-----+-----+-----+-----+
       0000  0600  1200  1800  0000                   0000  0600  1200  1800  0000
                 START HOUR                                     START HOUR
```

```
AMBIENT AIR QUALITY SUMMARY                PAGE:  3
OBSERVED MAXIMUM ANALYSIS
POLLUTANT: CARBON MONOXIDE

JOB DESCRIPTION: SCL-85
SITE CODE: 001
DATA FILE: CAMDEN WDATA
FROM: 11/10/94   TO:   2/1/95   NUMBER OF RECORDS: 84


GRAPHICAL SUMMARY OF MORNING MAXIMUMS
```

```
RANKED RESULTS:

      6 + 1 1 1
        |        1 1 1 1
 CO   4 +8 8 8           1 1 1 1 1 1 1 1 1 1 1 1
(PPM)   |      8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 818181 1 1 1 1 1 1 1 1
      2 +                                              8 8 8 8 8 8 8 8
        |
      0 +---------+---------+---------+---------+---------+---------+
        0         5        10        15        20        25        30
                                   RANK
```

```
OBSERVED MAXIMUMS (*)
(I= INTERPOLATED VALUE)

               1 HOUR                                         8 HOUR
      6 +      *                                   6 +      *
        |                                            |     * *
 CO   4 +               ....                CO     4 +        *      .
(PPM)   |        . .   .   .               (PPM)     |    *       . .... .
      2 +     .   .  ...    . ..                   2 +..  *    **...     . .
        |.....     ..                                | ..
      0 +-----+-----+-----+-----+                  0 +-----+-----+-----+-----+
       0000  0600  1200  1800  0000                 0000  0600  1200  1800  0000
             START HOUR                                   START HOUR
```

AMBIENT AIR QUALITY SUMMARY   PAGE: 4
OBSERVED MAXIMUM ANALYSIS
POLLUTANT: CARBON MONOXIDE

JOB DESCRIPTION: SCL-85
SITE CODE: 001
DATA FILE: CAMDEN WDATA
FROM: 11/10/94   TO: 2/1/95   NUMBER OF RECORDS: 84

GRAPHICAL SUMMARY OF MIDDAY MAXIMUMS

RANKED RESULTS:

```
       6 +
         | 1
 CO    4 +8 8181 1
(PPM)    |      8 818181818181818181818181818181818 8 8 8
       2 +                                          1 1 1 181818181818181
         |
       0 +---------+---------+---------+---------+---------+---------+
         0         5        10        15        20        25        30
                                    RANK
```

OBSERVED MAXIMUMS (*)
(I= INTERPOLATED VALUE)

```
                1 HOUR                                  8 HOUR
      6 +                                      6 +
        |             *                          |
 CO   4 +                                CO    4 +        *   **
(PPM)   |                               (PPM)    |       * ***  *.. .
      2 +     ...      .....                   2 +.     ...       . .
        |......  .....     ....                  | ....              ...
      0 +-----+-----+-----+-----+              0 +-----+-----+-----+-----+
      0000  0600  1200  1800  0000             0000  0600  1200  1800  0000
             START HOUR                               START HOUR
```

AMBIENT AIR QUALITY SUMMARY   PAGE: 5
OBSERVED MAXIMUM ANALYSIS
POLLUTANT: CARBON MONOXIDE

JOB DESCRIPTION: SCL-85
SITE CODE: 001
DATA FILE: CAMDEN WDATA
FROM: 11/10/94   TO: 2/1/95   NUMBER OF RECORDS: 84

GRAPHICAL SUMMARY OF EVENING MAXIMUMS

RANKED RESULTS:

```
      6 +
        |
 CO   4 +818181818181818181818181818181 1 1 1
(PPM)   |                            8 8 8 8181818181818181818181818181
      2 +
        |
      0 +---------+---------+---------+---------+---------+---------+
        0         5        10        15        20        25        30
                                 RANK
```

OBSERVED MAXIMUMS (*)
(I= INTERPOLATED VALUE)

```
               1 HOUR
      6 +
        |                           .
 CO   4 +      *
(PPM)   |    .  . .  .        .  .
      2 +  . .    .. ...   .   .
        |. .         ...      . .
      0 +-----+-----+-----+-----+
      1200  1800  0000  0600  1200
              START HOUR
```

```
                    8 HOUR
      6 +
        |
 CO   4 +               *****
(PPM)   |           .***      . .
      2 +.     .....
        | .....                 . .
      0 +-----+-----+-----+-----+
      0000  0600  1200  1800  0000
              START HOUR
```

AMBIENT AIR QUALITY SUMMARY PAGE: 6
OBSERVED MAXIMUM ANALYSIS
POLLUTANT: CARBON MONOXIDE

JOB DESCRIPTION: SCL-85
SITE CODE: 001
DATA FILE: CAMDEN WDATA
FROM: 11/10/94 TO: 2/1/95 NUMBER OF RECORDS: 84

GRAPHICAL SUMMARY OF NOCTURNAL MAXIMUMS

RANKED RESULTS:

```
       6 +
         |
 CO    4 + 1 1 1
(PPM)    |8 8 8 818181818181818181818181 1 1 1 1 1 1 1
       2 +                             8 8 8 8 8 8 8 818181818181818181
         |
       0 +---------+---------+---------+---------+---------+---------+
         0         5         10        15        20        25        30
                                    RANK
```

OBSERVED MAXIMUMS (*)
(I= INTERPOLATED VALUE)

```
                 1 HOUR                                    8 HOUR
      6 +                                        6 +
        |                                          |
 CO   4 +      ...   *                  CO     4 +    ...   *
(PPM)   |   .    .   ...        . .    (PPM)     |   .    *  ***       . .
      2 +...      .     ........ . ..          2 +...      *    **..... . ..
        |                                          |
      0 +-----+-----+-----+-----+              0 +-----+-----+-----+-----+
      1200  1800  0000  0600  1200             1200  1800  0000  0600  1200
             START HOUR                               START HOUR
```

OBSERVED MAXIMUM ANALYSIS
POLLUTANT: CARBON MONOXIDE

JOB DESCRIPTION: SC1-280
SITE CODE: 002
DATA FILE: DEANZA WDATA
FROM: 12/5/94 TO: 2/2/95 NUMBER OF RECORDS: 60

OBSERVED MAXIMUMS:

TYPE	AVG.TIME (HRS.)	DAYS USED	VALUE (PPM)		DATE	TIME
DAILY	1	60	9.0		01/18/95	1700-1800
	8	60	5.9		01/18/95	1200-2000
MORNING	1	60	9.0		01/19/95	0800-0900
	8	53	5.4	(I)	01/19/95	0700-1500
MIDDAY	1	54	8.0		02/01/95	1600-1700
	8	54	5.8		01/31/95	1000-1800
EVENING	1	60	9.0		01/18/95	1700-1800
	8	54	5.9		01/18/95	1200-2000
NOCTURNAL	1	53	6.0		01/19/95	2200-2300
	8	53	4.4		01/19/95	2000-0400

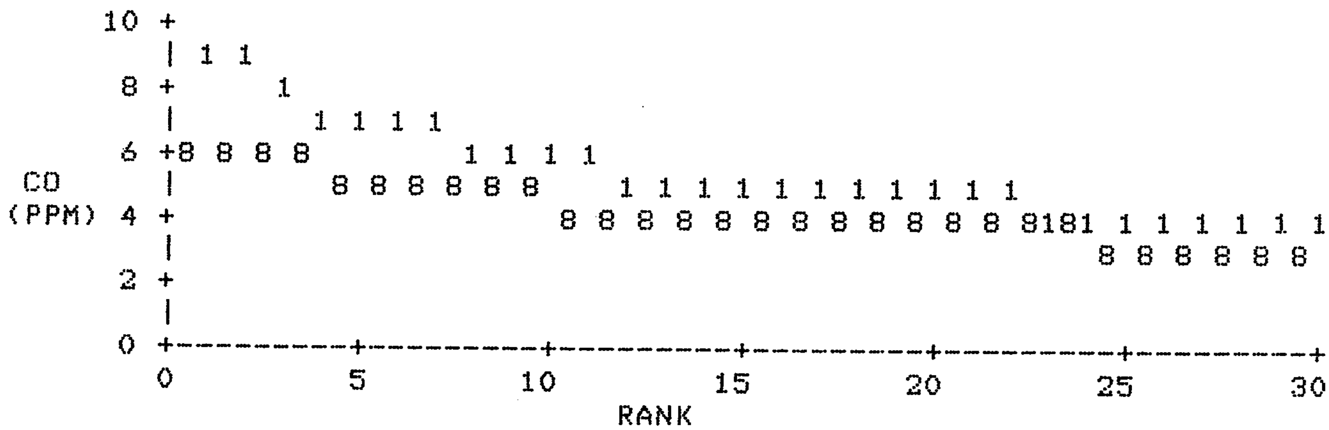
(I) CONTAINS INTERPOLATED OR SUBSTITUTED VALUE

AMBIENT AIR QUALITY SUMMARY PAGE: 3
OBSERVED MAXIMUM ANALYSIS
POLLUTANT: CARBON MONOXIDE

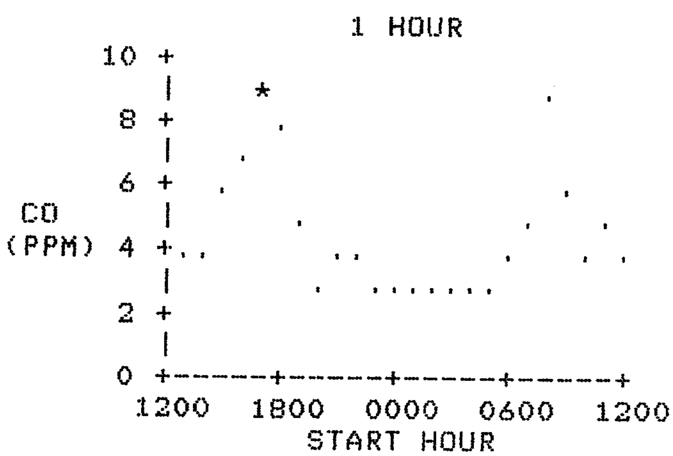
JOB DESCRIPTION: SC1-280
SITE CODE: 002
DATA FILE: DEANZA WDATA
FROM: 12/5/94 TO: 2/2/95 NUMBER OF RECORDS: 60

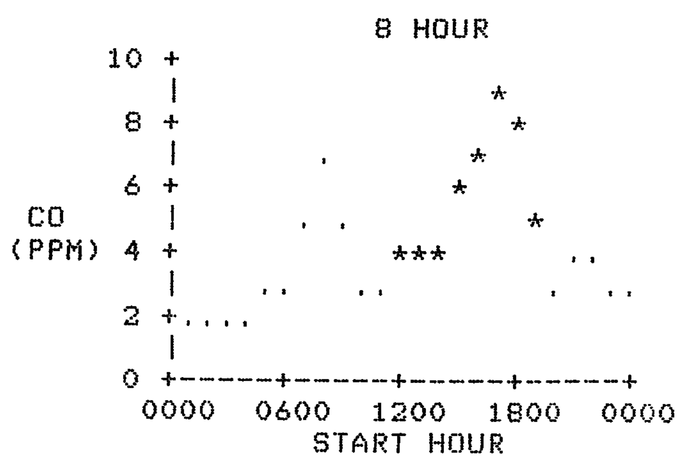
GRAPHICAL SUMMARY OF DAILY MAXIMUMS

RANKED RESULTS:



OBSERVED MAXIMUMS (*)
(I= INTERPOLATED VALUE)





```
AMBIENT AIR QUALITY SUMMARY                PAGE:  4
OBSERVED MAXIMUM ANALYSIS
POLLUTANT: CARBON MONOXIDE

JOB DESCRIPTION: SC1-280
SITE CODE: 002
DATA FILE: DEANZA WDATA
FROM: 12/5/94    TO:   2/2/95    NUMBER OF RECORDS: 60


GRAPHICAL SUMMARY OF MORNING MAXIMUMS
```

```
RANKED RESULTS:

      10 +
         | 1
       8 +
         |   1
       6 +8    1
  CO     |  8 8  1 1 1
 (PPM) 4 +      8 8 8 81818181 1 1 1 1 1 1 1
         |             8 8 8 8 8 8 8 8181818181818181818181
       2 +                                                  818181
         |
       0 +---------+---------+---------+---------+---------+---------+
         0         5         10        15        20        25        30
                                  RANK
```

```
OBSERVED MAXIMUMS (*)
(I= INTERPOLATED VALUE)

              1 HOUR                                        8 HOUR
      10 +                                   10 +
         |       *                              |       *
       8 +                                    8 +
         |                 ..                   |                 ..
       6 +         .     .      .             6 +         *     .      .
  CO     |     .   .  . ..    ...        CO     |     *   *  **    ...
 (PPM) 4 +    .     . .         . . .   (PPM) 4 +    .     * *         . . .
         |.....                                 |.....
       2 +                                    2 +
         |                                      |
       0 +-----+-----+-----+-----+            0 +-----+-----+-----+-----+
         0000  0600  1200  1800  0000            0000  0600  1200  1800  0000
              START HOUR                              START HOUR
```

AMBIENT AIR QUALITY SUMMARY PAGE: 5
OBSERVED MAXIMUM ANALYSIS
POLLUTANT: CARBON MONOXIDE

JOB DESCRIPTION: SC1-280
SITE CODE: 002
DATA FILE: DEANZA WDATA
FROM: 12/5/94 TO: 2/2/95 NUMBER OF RECORDS: 60

GRAPHICAL SUMMARY OF MIDDAY MAXIMUMS

RANKED RESULTS:

```
      10 +
         |
       8 + 1
         |   1 1 1
       6 +8 8 8 8  1
 CO      |        8  1 1 1 1 1 1 1 1 1
(PPM)  4 +          8 8 8 8 8 8 8 8 8 818181 1 1 1 1 1 1
         |                                  8 8 8 8 8 8 81818181818181
       2 +
         |
       0 +---------+---------+---------+---------+---------+---------+
         0         5        10        15        20        25        30
                                RANK
```

OBSERVED MAXIMUMS (*)
(I= INTERPOLATED VALUE)

```
                 1 HOUR
      10 +
         |
       8 +   *.
         |     .
       6 +  .
 CO      | .
(PPM)  4 +.     ....      ..
         |
       2 +           .     .  .
         |            ......
       0 +-----+-----+-----+-----+
       1200  1800  0000  0600  1200
               START HOUR
```

```
                    8 HOUR
      10 +
         |
       8 +
         |          ** *
       6 +             **
 CO      |         *  *     ..
(PPM)  4 +      ..        .  .
         |     . .*      .
       2 +    .               ..
         |..I.
       0 +-----+-----+-----+-----+
       0000  0600  1200  1800  0000
               START HOUR
```

```
AMBIENT AIR QUALITY SUMMARY                PAGE:  6
OBSERVED MAXIMUM ANALYSIS
POLLUTANT: CARBON MONOXIDE

JOB DESCRIPTION: SC1-280
SITE CODE: 002
DATA FILE: DEANZA WDATA
FROM: 12/5/94    TO:   2/2/95   NUMBER OF RECORDS: 60


GRAPHICAL SUMMARY OF EVENING MAXIMUMS
```

```
RANKED RESULTS:

     10 +
        | 1
      8 +   1
        |     1 1 1 1
      6 +8 8 8 8       1 1 1 1
 CO     |       8 8 8 8 8 8  1 1 1 1 1 1 1 1
(PPM) 4 +                   8 8 8 8 8 8 8 8 8181818181 1 1 1 1 1
        |                                             8 8 8 8 8 8181
      2 +
        |
      0 +---------+---------+---------+---------+---------+---------+
        0         5        10        15        20        25        30
                                   RANK
```

```
OBSERVED MAXIMUMS (*)
(I= INTERPOLATED VALUE)

                  1 HOUR                                        8 HOUR
     10 +                                      10 +
        |    *              .                     |               *
      8 +      .                                8 +                *
        |    .                                    |        .      *
      6 +  .                  .                 6 +              *
 CO     |      .            .   .          CO     |       . .       *
(PPM) 4 +. .     . .       .  . .         (PPM) 4 +           ***       . .
        |      .  .......                         |  . .    . .       .  . .
      2 +                                       2 +....
        |                                         |
      0 +-----+-----+-----+-----+               0 +-----+-----+-----+-----+
      1200  1800  0000  0600  1200              0000  0600  1200  1800  0000
              START HOUR                                START HOUR
```

```
AMBIENT AIR QUALITY SUMMARY               PAGE:  7
OBSERVED MAXIMUM ANALYSIS
POLLUTANT: CARBON MONOXIDE

JOB DESCRIPTION: SC1-280
SITE CODE: 002
DATA FILE: DEANZA WDATA
FROM: 12/5/94    TO:   2/2/95    NUMBER OF RECORDS: 60


GRAPHICAL SUMMARY OF NOCTURNAL MAXIMUMS
```

```
RANKED RESULTS:

      10 +
         |
       8 +
         |
       6 + 1
 CO      |8   1
(PPM)  4 +   8 8181 1 1 1 1 1
         |          8 8 8 8 8 818181818181818181818181 1
       2 +                                              8 8181818181818181
         |
       0 +---------+---------+---------+---------+---------+---------+
         0         5         10        15        20        25        30
                                     RANK
```

```
OBSERVED MAXIMUMS (*)
(I= INTERPOLATED VALUE)

                1 HOUR                                       8 HOUR
      10 +                                      10 +
         |                                         |
       8 +                                       8 +
         |    ..                                   |    ..
       6 +  .        *                           6 +  .        *
 CO      |..    ...                        CO      |..    ..*
(PPM)  4 +          . .....               (PPM)  4 +          * *****
         |                .    .                   |                .    .
       2 +     .           .... ...              2 +                 .... ...
         |                                         |
       0 +-----+-----+-----+-----+               0 +-----+-----+-----+-----+
        1200  1800  0000  0600  1200              1200  1800  0000  0600  1200
              START HOUR                                START HOUR
```

Carbon Monoxide Concentrations

Location: BAAQMD Monitoring Station SJSC
Site #: 7018SJSC
Year: 1994
Units: ppm
Month: November

HOUR

DAY	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	N	MEAN
1	2.7	2.2	2.1	1.5	1.6	1.8	3.1	3.3	3.4	2.0	1.2	1.2	1.4	1.0	1.1	1.1	1.0	1.0	0.9	0.8	0.7	0.5	0.5	0.5	24	1.53
2	0.4	0.4	0.4	0.4	0.4	0.5	1.0	1.4	1.1	0.8	0.7	0.6	0.7	0.6	0.7	0.7	0.9	1.4	1.7	1.1	1.0	1.3	2.8	3.1	24	1.00
3	3.0	1.0	0.6	0.6	0.8	1.3	3.3	4.4	1.6	0.8	0.6	1.0	1.0	1.0	1.0	1.0	1.0	2.0	1.0	2.0	2.0	2.0	3.0	3.0	24	1.63
4	2.0	1.0	1.0	1.0	1.0	1.0	1.5	1.3	1.3	1.1	0.9	0.7	0.6	0.6	0.6	0.7	0.7	1.0	0.9	0.7	0.6	0.9	0.7	0.6	24	0.93
5	0.6	0.5	0.5	0.4	0.4	0.4	0.5	0.5	0.6	0.6	0.6	0.7	0.7	0.7	0.9	1.0	0.9	0.9	0.7	0.6	0.6	0.6	0.6	0.5	24	0.63
6	0.5	0.5	0.4	0.4	0.4	0.4	0.5	0.6	0.7	0.8	0.9	1.0	1.1	1.1	1.3	1.2	1.6	1.7	1.0	1.1	1.2	1.1	0.9	0.7	24	0.88
7	0.7	0.6	0.5	0.5	0.6	0.6	0.9	1.6	1.5	0.9	0.8	0.8	0.8	0.9	0.9	0.9	1.2	1.8	1.7	1.8	3.0	2.6	3.0	3.5	24	1.34
8	2.7	1.9	1.8	1.2	1.0	0.9	2.7	2.4	1.8	1.5	1.2	0.9	1.2	1.3	1.0	1.2	1.1	1.4	1.8	2.1	4.3	2.6	1.9	1.0	24	1.70
9	0.6	0.6	0.5	0.4	0.5	0.5	0.6	1.0	0.7	0.5	0.6	0.6	0.7	0.9	1.3	2.0	1.5	1.8	1.5	1.3	1.5	1.2	1.6	1.1	24	0.98
10	0.9	0.9	0.8	0.7	0.7	0.9	1.7	2.4	1.9	1.0	0.8	0.9	0.9	0.9	0.8	0.9	1.1	1.9	2.1	1.8	2.4	2.1	2.6	2.6	24	1.40
11	1.9	1.9	2.0	1.4	1.3	1.3	2.4	2.6	2.6	2.0	1.4	1.2	1.2	0.8	0.9	1.2	1.2	1.4	2.4	2.4	2.1	2.0	2.3	2.4	24	1.76
12	2.4	1.7	1.6	1.4	1.2	1.2	1.3	1.3	1.3	1.2	0.9	1.1	1.3	1.5	1.3	0.9	1.0	1.6	2.2	2.0	1.9	1.7	3.2	3.9	24	1.63
13	5.0	6.1	4.9	4.0	3.6	3.1	2.7	3.9	3.0	1.1	0.9	0.8	0.7	0.7	0.7	0.6	0.9	1.5	2.2	2.0	2.1	3.0	2.3	2.8	24	2.44
14	2.6	1.9	1.2	1.0	0.8	1.5	4.6	3.8	3.2	2.6		2.0	1.9	1.9	1.8	1.7	2.0	3.0	1.9	2.5	3.1	3.5	2.8	1.7	23	2.30
15	1.2	0.8	0.7	0.6	0.6	0.7	0.8	1.1	1.2	1.2	1.5	1.1	0.8	0.9	1.1	1.2	1.5	2.2	3.3	3.6	2.5	3.6	3.0	2.5	24	1.57
16	2.3	2.1	1.7	1.8	1.7	1.7	2.5	5.0	3.4	1.6	0.8	0.8	1.1	0.9	0.8	1.0	1.1	1.1	1.0	0.8	0.9	1.2	2.3	2.3	24	1.66
17	1.7	1.3	0.9	0.8	0.7	0.8	1.4	2.3	2.5	1.3		0.7	0.6	0.6	0.7	0.8	0.8	0.7	0.6	0.6	0.5	0.4	0.4	0.3	23	0.93
18	0.4	0.6	0.8	3.0	1.8	1.9	4.3	4.8	3.4	0.9	0.6	0.6	0.5	0.5	0.5	0.6	0.7	1.3	2.2	1.3	1.7	1.5	1.2	1.3	24	1.52
19	1.8	1.3	1.0	0.6	0.5	0.6	0.6	1.2	1.0	0.7	0.6	0.6	0.6	0.6	0.6	0.8	1.2	1.8	3.5	2.1	2.2	2.4	2.2	2.2	24	1.28
20	2.0	1.4	1.3	1.1	0.9	0.9	1.0	1.2	1.2	1.2	1.0	1.1	0.9	0.6	0.6	0.7	1.0	1.2	1.2	1.1	1.0	1.0	0.9	0.4	24	1.04
21	0.3	0.3	0.3	0.3	0.3	0.5	1.3	1.5	1.4	0.9		0.8	0.6	0.7	0.7	0.7	1.2	2.2	2.2	2.5	3.2	3.1	2.8	3.5	23	1.36
22	3.5	3.3	2.9	2.2	1.6	1.9	3.0	3.8	4.1	2.1	1.2	1.0	0.9	1.4	1.1	0.9	1.3	2.0	2.4	3.0	3.7	4.4	3.8	3.7	24	2.47
23	3.8	2.0	1.4	1.5	2.0	2.0	4.0	4.2	3.7	2.3	2.0	1.9	1.7	1.8	1.3	1.2	1.9	2.9	3.5	4.7	4.4	4.2	3.8	3.3	24	2.73
24	3.2	2.6	2.3	1.9	1.8	2.0	2.3	2.3	2.0	1.7	1.7	1.9	1.9	1.7	1.6	1.4	1.9	2.3	1.7	1.6	1.2	1.3	0.9	0.5	24	1.82
25	0.4	0.4	0.4	0.3	0.3	0.6	0.9	0.7	0.5	0.5	0.6	0.8	0.8	0.8	0.6	0.6	1.3	1.8	1.2	1.6	1.4	1.0	1.2	0.8	24	0.81
26	0.5	0.7	0.4	0.3	0.3	0.3	0.3	0.4	0.7	0.7	0.5	0.5	0.5	0.5	0.6	0.7	0.8	1.5	1.6	2.0	2.0	3.2	3.0	2.4	24	1.02
27	2.2	1.5	1.1	0.9	0.6	0.5	0.5	0.6	0.6	0.5	0.6	0.6	0.6	0.5	0.5	0.5	0.6	0.6	0.6	0.6	0.6	0.7	0.7	0.9	24	0.73
28	0.8	0.6	0.6	0.4	0.4	0.5	0.9	1.4	0.9	0.6	0.6	0.6	0.6	0.7	0.6	0.8	1.0	1.7	2.3	2.1	1.9	2.0	3.0	3.2	24	1.18
29	2.2	1.2	1.7	1.7	1.1	1.5	2.7	4.1	3.8	2.7	2.3	2.2		1.7	1.0	1.1	1.3	1.8	2.1	2.3	2.7	3.9	3.6	3.3	23	2.26
30	3.6	2.1	2.1	2.1	2.2	2.5	4.7	5.7	5.6	3.8	2.0	1.8	1.8	1.6	1.5	1.9	2.7	3.1	4.0	5.1	4.8	6.3	5.6	4.8	24	3.39

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	N	MEAN
N	30	30	30	30	30	30	30	30	30	30	27	30	29	30	30	30	30	30	30	30	30	30	30	30	716	
MN	1.9	1.4	1.3	1.1	1.0	1.1	1.9	2.4	2.0	1.3	1.0	1.0	1.0	1.0	0.9	1.0	1.2	1.7	1.8	1.9	2.0	2.2	2.2	2.1	716	
MAX	5.0	6.1	4.9	4.0	3.6	3.1	4.7	5.7	5.6	3.8	2.3	2.2	1.9	1.9	1.8	2.0	2.7	3.1	4.0	5.1	4.8	6.3	5.6	4.8		6.3

Carbon Monoxide Concentrations

Location: BAAQMD Monitoring Station SJSC
Site #: 7018SJSC
Year: 1994
Units: ppm
Month: December

HOUR

DAY	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	N	MEAN
1	4.4	3.9	3.0	2.9	2.4	2.6	4.3	7.8	7.8		2.9	1.6	1.4	1.1	1.1	1.0	1.0	2.3	2.6	1.9	1.8	2.9	3.7	3.6	23	2.957
2	3.0	2.0	1.2	1.1	1.1	1.6	1.8	1.1	1.5	1.1	1.0	0.9	1.1	1.0	1.0	1.1	1.0	1.3	1.6	1.5	1.8	1.9	1.7	1.1	24	1.396
3	0.7	0.9	0.4	0.3	0.3	0.3	0.4	0.5	0.7	0.6	0.7	0.7	0.7	0.7	0.6	0.6	0.5	0.6	0.8	0.6	0.7	0.7	0.8	0.9	24	0.613
4	0.8	0.5	0.4	0.3	0.4	0.3	0.4	0.5	0.5	0.6	0.7	0.8	0.9	0.7	1.1	1.2	1.2	0.9	0.8	1.0	1.1	1.3	1.0	1.0	24	0.767
5	0.9	0.8	0.6	0.6	0.5	0.8	1.7	2.6	2.2	1.3	0.9	0.9	0.8	0.7	0.7	0.9	1.2	1.6	2.0	2.7	2.4	1.5	1.9	1.9	24	1.338
6	1.3	0.9	0.9	0.8	0.6	0.6	0.8	1.2	1.1	0.9	0.7	1.0	0.8	0.5	0.7	0.8	1.0	1.2	1.5	1.3	1.7	1.6	1.4	2.8	24	1.088
7	2.5	2.7	2.0	1.7	1.3	2.5	4.6	5.6	8.6	3.0	1.9	0.7	0.7	0.8	0.8	0.9	0.9	1.3	1.7	1.4	2.2	2.4	1.9	1.9	24	2.250
8	1.5	1.1	1.2	0.8	0.7	0.7	1.2	2.2	3.1	1.3	0.8	0.5	0.7	0.7	0.8	0.9	1.4	2.3	3.0	2.9	2.3	3.2	2.7	2.7	24	1.613
9	3.4	2.6	2.3	1.9	2.0	1.8	4.2	4.6	5.7	3.5	3.0	2.4	2.1	1.8	1.8	1.9	2.7	4.9	4.0	2.8	3.7	3.2	4.0	3.9	24	3.092
10	3.3	3.8	3.8	3.3	2.2	1.6	1.3	2.3	2.4	1.6	1.7	1.6	1.6	2.0	1.9	1.7	2.2	1.8	1.8	2.2	3.0	3.9	3.3	2.3	24	2.358
11	1.7	1.6	1.7	1.0	1.1	1.1	0.9	0.9	1.0	0.8	0.7	0.6	0.6	0.6	0.5	0.5	0.6	0.6	0.9	0.7	0.7	0.6	0.5	0.4	24	0.846
12	0.4	0.5	0.5	0.5	0.5	0.6	1.1	1.6	1.5	1.0	0.7	0.7	1.1	1.4	0.9	0.8	1.0	1.3	1.2	1.2	1.2	1.6	1.7	1.4	24	1.017
13	0.8	0.9	0.7	0.5	0.5	0.7	1.1	2.1	2.1	1.0	0.8	0.6	0.6	0.6	0.6	0.6	1.0	2.1	2.6	2.0	2.0	1.8	1.9	1.5	24	1.213
14	1.2	0.7	0.6	0.4	0.4	0.6	0.8	1.1	1.4	0.8	0.7	0.7	0.6	0.6	0.6	0.8	1.1	1.4	1.9	1.8	1.5	1.0	1.1	1.1	24	0.954
15	0.9	0.8	0.8	0.6	0.6	0.9	1.4	2.3	2.2	1.5	1.5	1.3	1.3	1.5	1.6	1.6	1.8	2.2	2.2	2.5	3.1	3.3	3.6	3.2	24	1.779
16	3.3	2.4	1.8	1.5	1.6	2.2	3.3	4.1	3.8	2.6		1.9	1.7	1.5	1.1	1.4	1.8	3.1	3.5	3.7	3.1	3.6	3.8	4.4	23	2.661
17	4.5	3.6	3.3	2.6	1.9	2.1	2.9	3.0	2.4	2.3	1.9	1.3	1.7	1.3	1.2	1.2	1.1	1.5	1.9	1.9	2.8	3.9	3.0	2.4	24	2.321
18	1.5	1.2	0.8	0.8	0.8	0.8	1.1	1.3	1.3	1.2	0.8	0.6	0.6	0.5	0.6	0.6	0.9	1.0	1.1	2.2	2.7	3.8	4.5	4.1	24	1.450
19	4.0	2.9	1.6	1.5	0.8	0.8	1.0	1.6	1.8	2.2		2.3	2.1	2.0	2.0	2.1	3.1	2.9	2.5	2.1	2.7	2.2	2.3	3.2	23	2.161
20	3.6	3.9	3.4	2.3	1.4	1.3	1.7	1.8	1.9	1.8	1.8	1.8	1.8	1.9	1.8	1.6	1.9	2.5	2.6	2.8	2.4	2.0	1.9	1.6	24	2.146
21	1.6	2.1	2.6	2.3	1.7	2.7	4.1	4.2	2.5	2.3			1.7	1.4	1.8	1.4	1.8	2.9	3.5	5.6	6.0	6.0	5.6	5.6	22	3.155
22	5.5	4.9	3.2	2.9	2.8	2.8	5.0	8.8	6.6	3.5	3.6	3.1	2.1	1.5	1.5	1.7	1.9	3.4	4.0	3.4	5.6	5.9	6.1	6.8	24	4.025
23	7.4	5.6	4.1	3.0	2.7	3.1	2.3	2.2	2.7	3.4	3.3	3.3	3.0	3.1	2.9	2.3	2.1	1.8	1.7	2.7	2.6	0.8	0.9	0.5	24	2.813
24	0.8	0.6	0.4	0.2	0.3	0.4	0.5	0.6	1.0	0.5	1.1	1.0	0.6	0.5	0.4	0.4	0.4	0.4	0.4	0.5	0.6	0.7	0.9	0.9	24	0.588
25	0.7	0.7	0.6	0.6	0.5	0.4	0.5	0.9	0.7	0.4	0.4	0.4	0.3	0.3	0.4	0.4	0.5	1.0	1.4	2.2	4.1	4.8	4.8	5.8	24	1.367
26	5.5	5.9	3.2	3.8	3.6	2.8	3.4	3.8	4.1	3.2	2.2	1.4	1.3	1.3	1.2	0.8	1.0	2.2	2.8	6.0	3.6	5.2	6.0	5.2	24	3.313
27	4.9	3.3	2.5	1.9	1.7	1.6	2.9	4.5	4.7	2.4	1.9	1.9	1.2	1.8	2.1	2.8	3.0	3.5	4.0	2.5	0.8	1.0	0.3	0.3	24	2.396
28	0.4	0.4	0.6	0.7	0.7	0.5	1.0	1.3	2.4	2.0	1.0	0.7	0.6	0.5	0.7	0.6	1.1	2.3	2.7	3.2	2.9	2.3	1.9	2.3	24	1.367
29	2.0	1.6	1.3	1.1	1.1	1.3	1.9	2.9	3.9	1.8	1.1	0.7	0.7	0.8	0.9	0.8	1.3	2.7	2.2	2.2	2.2	3.3	2.8	2.5	24	1.796
30	2.4	2.1	1.7	1.4	1.4	1.7	3.0	3.6	3.0	1.9	1.6	1.4	1.3	0.7	0.8	0.5	0.5	1.0	1.3	3.2	3.0	2.1	2.0	1.1	24	1.779
31	0.9	0.6	0.4	0.4	0.4	0.7	0.8	0.7	1.1	0.7	0.7	0.7	1.3	1.5	1.7	1.5	2.0	2.5	2.8	2.9	2.5	1.8	1.4	1	24	1.304

N	31	31	31	31	31	31	31	31	31	30	28	30	31	31	31	31	31	31	31	31	31	31	31	31	739	
MN	2.4	2.1	1.7	1.4	1.2	1.4	2.0	2.6	2.8	1.7	1.4	1.3	1.2	1.2	1.1	1.1	1.3	1.7	2.1	2.3	2.4	2.5	2.6	2.5	739	
MAX	7.4	5.9	4.1	3.8	3.6	3.1	5.0	8.8	8.6	3.5	3.6	3.3	3.0	3.1	3.1	2.9	3.1	4.9	4.9	6.0	6.0	6.0	6.1	6.8		8.8

Carbon Monoxide Concentrations

Location: BAAQMD Monitoring Station SJSC
Site #: 7018SJSC
Year: 1995
Units: ppm
Month:January

HOUR

DAY	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	N	MEAN
1	1.3	1.6	1.8	1.4	0.6	0.3	0.6	0.6	1.0	1.0	1.3	1.3	0.9	0.8	0.8	0.8	1.1	1.4	1.8	2.5	1.8	1.3	1.9	2.7	24	1.3
2	1.3	0.9	1.3	1.1	1.0	0.8	1.0	1.2	1.5	1.4	0.8	0.5	0.4	0.5	0.4	0.4	0.4	0.5	0.5	0.4	0.3	0.5	0.7	0.5	24	0.8
3	0.3	0.3	0.3	0.3	0.3	0.4	0.7	1.1	1.5	1.1	0.6	0.6	0.5	0.5	0.6	0.5	0.8	1.5	1.1	1.1	1.2	0.6	0.4	0.3	24	0.7
4	0.3	0.2	0.2	0.2	0.2	0.3	0.4	0.5	0.5	0.4	0.4	0.4	0.5	0.4	0.5	0.6	0.8	1.3	1.1	0.9	0.5	0.5	0.8	0.8	24	0.5
5	0.6	0.5	0.4	0.4	0.4	1.0	1.5	2.9	3.0	1.2		0.6	0.6	0.6	0.7	1.0	1.2	1.7	1.4	2.4	2.8	2.6	2.4	1.4	23	1.4
6	1.2	0.7	0.5	0.6	0.5	0.6	0.8	1.4	1.2	0.9	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.4	0.5	0.5	0.4	24	0.6
7	0.4	0.4	0.3	0.3	0.3	0.4	0.4	0.4	0.6	0.5	0.4	0.4	0.5	0.5	0.9	0.8	0.8	1.0	0.7	0.6	0.7	0.5	0.5	0.5	24	0.5
8	0.4	0.4	0.4	0.4	0.3	0.3	0.4	0.4	0.4	0.5	0.5	0.5	0.5	0.5	0.6	0.6	0.6	0.6	0.5	0.5	0.5	0.4	0.4	0.4	24	0.5
9	0.4	0.3	0.3	0.3	0.3	0.4	0.5	0.7	0.7	0.6		0.6	0.5	0.6	0.6	0.7	0.7	0.8	0.8	0.6	0.5	0.4	0.5	0.4	23	0.5
10	0.4	0.4	0.4	0.4	0.4	0.4	0.6	1.0	1.2	1.1	0.7	0.5	0.5	0.6	0.6	0.8	0.8	1.6	2.4	0.9	0.7	0.9	0.8	0.6	24	0.8
11	0.6	0.5	0.5	0.4	0.4	0.5	0.7	1.0	1.0	0.8	0.6	0.6	0.6	0.6	0.7	0.7	0.9	1.3	0.8	0.7	0.6	0.5	0.5	0.4	24	0.7
12	0.4	0.4	0.4	0.4	0.4	0.5	1.0	2.0	2.1	1.6	1.3	1.3	0.9	0.9	0.8	0.9	1.1	1.1	1.0	0.8	0.7	0.8	0.7	0.6	24	0.9
13	0.5	0.4	0.4	0.4	0.4	0.5	0.6	0.7	0.8	0.7			0.6	0.6	0.6	0.6	0.7	0.9	0.6	0.5	0.5	0.6	0.6	0.5	22	0.6
14	0.5	0.5	0.5	0.4	0.4	0.5	0.9	0.8	1.4	0.6	0.6	0.5	0.7	0.9	0.7	0.6	0.8	1.0	1.8	1.6	1.4	0.8	0.9	0.8	24	0.8
15	0.9	0.8	0.6	0.6	0.5	0.5	0.6	0.7	1.0	1.1	0.8	0.8	0.8	0.8	0.7	0.6	0.8	1.3	1.8	2.0	1.9	1.7	1.0	0.8	24	1.0
16	0.6	0.7	0.8	0.7	0.6	0.7	1.2	1.9	1.6	1.1	0.9	0.9	0.8	0.8	0.8	0.8	0.8	1.1	1.2	1.3	1.3	1.4	1.3	1.6	24	1.0
17	2.1	2.3	1.5	1.2	1.1	1.8	2.0	4.4	4.1	2.9	1.4	1.1	0.8	1.0	1.1	1.3	1.8	2.5	3.2	3.2	2.9	2.4	2.6	2.7	24	2.1
18	2.1	1.5	1.3	1.2	1.0	1.3	1.9	6.0	6.1	2.2	0.8	0.6	0.9	0.9	0.8	1.0	1.5	2.0	1.7	2.2	2.7	3.6	3.4	3.4	24	2.1
19	3.3	2.3	2.0	1.6	1.5	1.7	3.8	4.2	4.2	2.6	2.1	1.9	2.1	2.3	2.6	2.5	2.5	3.8	5.0	3.9	3.8	3.1	3.9	3.1	24	2.9
20	3.1	2.6	2.5	1.7	1.7	1.5	2.1	2.6	2.0		0.6	0.6	0.7	0.7	0.9	0.7	0.8	1.7	0.9	0.7	0.6	0.6	0.5	0.5	23	1.3
21	0.5	0.4	0.4	0.4	0.5	0.5	0.7	1.4	1.2	0.9	0.7	0.7	0.8	0.9	0.8	0.8	1.1	1.1	0.9	0.6	0.6	0.7	0.7	0.6	24	0.7
22	0.5	0.5	0.5	0.5	0.4	0.5	0.5	0.5	0.5	0.5	0.6	0.6	0.6	0.7	0.7	0.8	0.9	0.9	0.8	0.7	0.7	0.7	0.7	0.7	24	0.6
23	0.7	0.6	0.6	0.5	0.5	0.6	0.8	0.9	1.0	0.8	0.7	0.6	0.7	0.6	0.7	0.8	0.7	0.8	1.0	0.8	0.9	0.8	0.7	0.7	24	0.7
24	0.6	0.6	0.6	0.5	0.5	0.6	0.9	1.0	1.0	0.9	0.6	0.6	0.6	0.6	0.6	0.6	0.7	1.1	1.3	1.5	1.7	0.9	0.6	0.6	24	0.8
25	0.6	0.5	0.5	0.5	0.6	1.2	2.3	3.9	4.8	1.6	1.4	1.4	1.3	1.1	1.0	1.0	1.1	1.3	2.0	2.1	2.4	2.7	1.8	1.7	24	1.6
26	1.6	1.0	1.1	0.9	0.8	1.0	1.4	1.7	1.4	1.1		0.8	0.6	0.6	0.6	0.6	0.8	1.1	1.3	1.0	0.9	0.7	0.5	0.5	23	1.0
27	0.4	0.3	0.3	0.3	0.3	0.4	0.6	0.7	0.8	0.7	0.6	0.6	0.6	0.6	0.7	0.8	1.0	1.2	1.1	1.0	1.0	0.9	1.0	0.7	24	0.7
28	0.8	0.5	0.5	0.4	0.4	0.4	0.5	0.7	1.1	0.7	0.7	0.5	0.7	0.6	0.8	0.9	0.9	1.1	1.2	1.2	0.8	1.0	1.3	1.2	24	0.8
29	1.2	1.0	1.0	1.2	1.1	1.2	1.2	1.1	1.0	1.1	1.0	1.1	0.8	0.8	0.8	0.7	0.7	0.8	1.8	2.2	2.6	1.6	2.7	2.4	24	1.3
30	2.2	1.7	1.2	1.0	1.0	1.1	1.3	1.6	1.7	2.2	1.1	1.4	1.8	1.7	2.0	2.0	2.2	2.2	1.8	2.1	1.6	1.8	2.4	3.0	24	1.8
31	3.0	2.1	1.6	1.5	1.4	1.7	2.9	4.3	3.0	2.7	2.7	2.3	2.2	1.9	1.3	1.4	1.3	2.0	2.6	3.2	3.0	2.7	2.7	3.3	24	2.4
N	31	31	31	31	31	31	31	31	31	30	27	30	31	31	31	31	31	31	31	31	31	31	31	31	738	
MN	1.1	0.9	0.8	0.7	0.6	0.8	1.1	1.7	1.7	1.2	0.9	0.8	0.8	0.8	0.8	0.9	1.0	1.3	1.4	1.4	1.4	1.2	1.3	1.2	738	
MAX	3.3	2.6	2.5	1.7	1.7	1.8	3.8	6.0	6.1	2.9	2.7	2.3	2.2	2.3	2.6	2.5	2.5	3.8	5.0	3.9	3.8	3.6	3.9	3.4		6.1

Carbon Monoxide Concentrations

Location: BAAQMD Monitoring Station SJ4T
Site #: 7009SJ4T
Year: 1994
Units: ppm
Month: November

HOUR

DAY	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	N	MEAN
1	4.8	5.2	3.4		2.4	1.6	2.7	4.4	4.2	1.4	0.9	0.7	0.7	0.8	0.8	1.0	1.0	1.0	0.8	0.7	0.6	0.5	0.5	0.4	23	1.8
2	0.4	0.4	0.4		0.3	0.5	1.0	1.2	0.8	0.8	0.6	0.6	0.6	0.6	0.6	0.7	0.9	1.2	0.8	0.9	1.4	1.0	2.4	3.3	23	0.9
3	3.2	2.3	1.9		1.4	2.1	3.8	4.7	2.6	0.7	0.5	0.6	0.5	0.5	0.4	0.5	0.8	1.4	1.1	0.8	1.1	2.4	3.1	3.3	23	1.7
4	3.2	2.1	0.8		0.5	0.6	0.8	1.1	1.2	0.9	0.7	0.6	0.5	0.5	0.6	0.7	0.8	1.4	1.1	0.7	0.7	0.6	0.4	0.3	23	0.9
5	0.3	0.3	0.3		0.2	0.2	0.3	0.3	0.4	0.5	0.4	0.5	0.6	0.6	0.6	0.5	0.5	0.5	0.4	0.4	0.3	0.3	0.3	0.3	23	0.4
6	0.3	0.3	0.3		0.2	0.2	0.2	0.4	0.5	0.5	0.6	0.6	0.6	0.5	0.7	0.8	1.1	1.0	0.7	0.7	0.8	0.7	0.6	0.5	23	0.6
7	0.5	0.4	0.3		0.3	0.4	0.8	1.1	1.2	0.8	0.5	0.5	0.6	0.5	0.6	0.7	1.0	1.5	1.1	0.9	1.2	2.5	4.2	3.2	23	1.1
8	2.8	2.1	1.6		0.8	1.0	1.6	2.4	2.0	1.1	0.7	0.5	1.0	1.0	0.8	0.9	1.0	1.6	1.4	1.7	3.0	1.9	1.1	0.5	23	1.4
9	0.4	0.4	0.4		0.3	0.4	0.4	0.6	0.6	0.6	0.7	0.6	0.6	0.9	0.9	1.4	1.3	1.4	1.5	1.0	1.2	1.2	1.4	1.0	23	0.8
10	0.8	0.8	0.6		0.6	0.7	1.7	1.6	1.3	1.0	0.8	0.6	0.6	0.6	0.6	0.6	0.7	1.0	1.0	1.2	1.7	2.2	3.7	4.4	23	1.3
11	2.9	2.9	2.8		1.8	1.6	1.9	2.6	3.6	2.7	1.4	1.3	1.0	0.7	0.6	0.9	1.0	1.2	1.9	2.5	2.5	3.7	2.7	3.1	23	2.1
12	2.6	2.5	2.1		1.0	0.9	1.3	1.7	1.3	1.1	0.8	0.8	1.1	1.0	0.8	0.6	0.7	1.1	1.4	1.2	1.8	2.1	2.9	3.5	23	1.5
13	5.5	5.6	5.3		3.9	2.4	2.6	2.6	2.4	1.8	0.8	0.6	0.5	0.5	0.5	0.5	0.6	0.9	1.4	2.0	4.0	5.7	5.8	3.6	23	2.6
14	3.8	3.5	2.4		2.0	2.6	2.7	4.2	4.8	3.0	2.2	1.8	1.6	1.5	1.4	1.6	1.9	2.6	3.2	4.4	3.7	1.7	1.2	0.8	23	2.5
15	0.7	0.7	0.7		0.5	0.6	1.0	1.3	0.9	1.0	1.1	0.9	1.0	1.1	1.3	1.8	2.4	4.0	2.9	1.9	2.5	1.8	1.6	1.5	23	1.4
16	1.7	1.7	2.4		2.1	1.5	3.4	5.2	3.5	1.7	0.9	0.7	0.9	0.7	0.7	0.8	1.0	1.2	1.0	1.0	1.1				20	1.7
17										1.0	1.0	1.0	1.0	0.8	0.8	0.9	0.9	1.1	0.9	0.9	0.7	0.6	0.6	0.5	15	0.8
18	0.6	0.6	0.7		0.7	1.1	2.7	4.8	3.2	1.0	0.8	0.6	0.7	0.6	0.6	0.8	0.9	1.4	1.7	1.2	1.3	1.7	1.4	0.9	23	1.3
19	1.7	1.7	1.3		0.4	0.6	1.4	2.8	2.1	1.1	0.6	0.6	0.6	0.6	0.5	0.6	0.8	1.8	2.3	3.0	5.1	3.3	3.8	3.1	23	1.7
20	1.7	2.0	1.5		0.7	0.7	0.9	1.3	1.2	1.1	1.1	1.1	0.8	0.6	0.6	0.7	0.8	0.9	1.0	1.1	0.9	1.1	0.9	0.5	23	1.0
21	0.4	0.4	0.4		0.5	0.7	1.0	1.5	1.2	1.1	1.0	0.8	0.8	0.8	0.8	0.9	1.3	2.2	2.5	1.5	2.1	3.2	3.8	4.1	23	1.4
22	3.5	3.8	3.3		1.5	1.5	2.5	4.1	5.2	2.4	1.6		1.1	1.1	1.2	0.9	1.3	1.9	1.9	3.9	4.1	4.0	2.9	4.2	22	2.6
23	3.0	2.6	2.4		2.5	1.9	3.4	5.2	5.3	3.2	1.7	1.8	1.7	1.5	1.4	1.3	2.0	2.5	3.1	4.5	4.7	7.5	3.7	3.0	23	3.0
24	3.9	3.5	3.7		2.2	2.3	3.0	2.0	2.2	1.6	1.6	1.5	1.6	1.6											13	2.4
25																									0	0.0
26																									0	0.0
27																									0	0.0
28											0.3	0.5	0.5	0.5	0.4	0.6	1.1	1.5	1.2	1.8	2.0	3.7	4.6	3.2	14	1.6
29	2.2	2.4	1.8		1.4	1.6	3.5	2.9	4.2	4.0			1.7	1.5	0.9	1.1	1.4	2.3	2.2	2.0	2.2	3.2	5.4	3.5	21	2.4
30	3.8	4.4	4.0		2.8	1.4	2.6	5.7	6.9	3.1	2.1	1.7	1.6	1.5	1.5	1.9	2.4	3.0	3.6	5.3	7.9	7.9	7.2	4.5	23	3.8
N	25	25	25	0	25	25	25	25	25	26	26	25	27	27	26	26	26	26	26	26	26	25	25	25	588	
MN	2.2	2.1	1.8	0.0	1.2	1.2	1.9	2.6	2.5	1.5	1.0	0.9	0.9	0.9	0.8	0.9	1.1	1.6	1.6	1.8	2.3	2.6	2.6	2.3	588	
MAX	5.5	5.6	5.3	0.0	3.9	2.6	3.8	5.7	6.9	4.0	2.2	1.8	1.7	1.6	1.5	1.9	2.4	4.0	3.6	5.3	7.9	7.9	7.2	4.5		7.9

Carbon Monoxide Concentrations

Location: BAAQMD Monitoring Station SJ4T
Site #: 7009SJ4T
Year: 1994
Units: ppm
Month: December

HOUR

DAY	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	N	MEAN
1	2.9	3.6	5.4		1.7	3.3	4.8	10.2	4.8	3.9	2.6	2.0	1.3	1.0	1.1	1.0	1.2	2.0	2.3	2.1	1.7	2.2	3.4	3.4	23	3.0
2	3.8	3.4	2.5		1.9	1.7	1.8	1.2	1.2	1.0	1.0	0.9	0.9	0.8	0.9	1.0	0.9	1.3	1.2	0.9	1.5	2.0	2.0	1.3	23	1.5
3	0.8	0.8	0.6		0.4	0.4	0.5	0.5	0.6	0.7	0.8	1.0	1.2	1.1	1.0	0.9	1.2	1.2	0.8	0.9	1.0	1.0	1.0	1.2	23	0.9
4	0.9	1.0	0.7	0.0	0.5	0.4	0.5	0.6	0.7	0.7	0.6	0.8	0.8	0.7	0.7	1.0	0.9	0.9	0.7	0.9	1.2	1.5	1.3	1.0	24	0.8
5	1.0	1.1	0.7	1.0	0.6	0.7	1.1	1.6	2.1	1.5	1.0	0.8	0.8	0.7	0.8	0.8	1.1	1.0	1.5	2.0	2.8	2.4	2.5	2.2	24	1.3
6	2.1	1.7	1.0		0.6	0.8	1.0	1.4	1.3	1.1	1.0	0.8	0.6	0.5	0.6	0.7	1.0	1.2	1.1	1.2	1.3	1.3	1.6	1.5	23	1.1
7	1.6	2.9	2.7		2.8	3.5	4.5	7.7	9.1	3.6	1.2	0.7	0.7	0.8	0.8	0.8	1.0	0.9	1.2	1.4	1.1	1.6	1.8	1.7	23	2.4
8	1.6	1.3	1.1		0.7	1.2	1.8	4.6	6.8	4.0	1.3	0.6	0.7	0.7	0.7	0.8	1.2	2.1	2.7	2.7	3.3	3.7	5.2	4.5	23	2.3
9	4.9	3.6	2.2		2.1	2.9	4.0	4.9	4.8	2.2	2.1	2.2	1.6	1.6	1.7	1.9	2.6	5.0	4.8	4.0	3.8	4.8	4.7	4.6	23	3.3
10	5.4	5.9	4.3		2.5	2.0	2.0	2.2	2.1	1.9	1.7	1.8	1.6	1.5	1.4	1.6	1.5	1.3	1.4	1.5	2.1	3.1	3.6	3.9	23	2.4
11	2.5	1.5	2.2		0.9	0.8	0.7	0.7	0.7	0.7	0.6	0.6	0.5	0.5	0.5	0.6	0.7	0.9	0.8	0.6	0.5	0.5	0.4	0.3	23	0.8
12	0.3	0.4	0.4		0.4	0.7	1.2	1.4	1.5	1.0	0.8	0.9	1.0	1.0	1.0	0.8	1.3	1.7	1.4	1.2	0.9	1.2	1.4	1.9	23	1.0
13	1.3	0.7	0.5		0.4	0.6	0.9	1.3	1.4	0.8	0.8	0.7	0.6	0.6	0.6	0.7	1.3	2.0	2.4	2.2	2.1	1.8	2.0	1.4	23	1.2
14	1.0	0.7	0.4		0.3	0.4	0.6	0.9	1.0	0.7	0.6	0.7	0.6	0.6	0.7	1.0	1.2	1.5	2.2	1.5	1.3	0.7	0.8	0.9	23	0.9
15	0.8	0.7	0.6		0.6	0.7	1.1	2.1	2.1	1.8	1.3	1.2	0.9	0.8	0.9	1.1	1.5	1.5	1.4	2.1	2.7	4.6	3.1	3.9	23	1.6
16	3.3	2.1	2.1		2.0	2.4	2.6	3.5	4.5	4.2	3.1	2.0	2.0	1.2	1.1	1.3	1.7	3.3	3.7	2.2	3.8	5.6	4.6	3.7	23	2.9
17	4.7	3.5	3.9		1.5	2.6	3.2	4.5	2.8	2.7	2.2	1.8	1.7	1.4	1.0	0.9	0.9	1.0	1.1	1.4	2.1	3.6	3.7	2.7	23	2.4
18	1.6	1.2	1.0		0.8	0.8	1.1	1.4	1.9	1.5	1.0	0.5	0.4	0.4	0.4	0.5	0.6	0.7	0.9	1.1	1.2	1.6	3.6	4.9	23	1.3
19	4.4	3.9	1.9		1.3	0.9	1.0	1.3	1.6	1.8	1.9	1.9	2.0	1.7	1.8	2.0	2.8	2.8	2.9	2.0	3.1	2.2	1.9	3.4	23	2.2
20	4.6	4.8	3.5		2.7	2.1	1.8	2.0	2.4	2.6	1.9	1.6	2.2	2.1	2.1	2.1	2.6	2.8	2.3	2.8	3.0	3.1	2.6	1.8	23	2.6
21	1.7	2.9	4.2		3.7	3.1	3.2	1.6	1.9	1.8	1.8	1.9	1.9	1.8		1.7	1.8	3.3	4.7	6.6	9.0	4.8	4.2	5.4	22	3.3
22	4.5	4.7	3.8		4.6	5.1	4.7	9.1	5.8	3.3	4.0	3.7	2.7	1.9	1.4	1.5	2.2	3.4	4.6	4.1	4.3	7.5	8.7	9.4	23	4.6
23	5.0	5.8	5.2		3.9	3.4	2.8	2.7	3.2	3.4	3.8	3.3	3.5	2.7	2.4	2.1	1.8	1.7	2.1	2.9	3.5	0.9	0.7	0.9	23	2.9
24	1.0	0.8	0.5		0.5	0.5	0.6	0.9	1.1	0.6	0.9	0.8	0.6	0.5											13	0.7
25																					2.6	3.9	5.6	6.3	4	4.6
26	6.2	5.5	5.0		2.9	3.7	3.4	3.6	3.7	2.6	2.3	2.1	2.0	1.2	1.0	0.9	0.9	2.5	5.0	6.4	7.6	8.5	8.6	8.5	23	4.1
27	5.3	5.9	5.9		3.1	2.9	3.4	4.5	4.3	3.1	1.9	1.7	1.3	1.4	1.4	1.9	2.8	2.4	3.0	1.2	1.1	0.8	0.4	0.4	23	2.6
28	0.5	0.5	0.7		0.7	0.6	0.9	1.5	2.0	2.0	1.2	0.8	0.7	0.5	0.5	0.6	1.0	2.5	2.5	2.2	3.5	2.8	1.8	1.6	23	1.4
29	1.8	1.9	1.7		1.3	1.3	1.7	2.3	2.3	1.7	1.0	1.2	1.0	1.0	1.0	1.0	1.0	2.2	2.9	2.8	2.5	2.0	2.5	2.5	23	1.8
30	2.1	2.6	1.9		1.8	1.4	2.4	4.2	2.4	1.9	1.2	1.4	1.4	1.2	1.0	0.9	1.0	1.5	3.0	3.4	3.8	2.7	1.7	1.2	23	2.0
31	0.9	0.7	0.8		0.6	0.6	0.7	1.0	1.1	0.8	1.0	1.1	1.1	1.3	1.4	1.5	1.6	2.0	2.8	2.9	2.4	2.3	1.8	1.4	23	1.4

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23		
N	30	30	30	2	30	30	30	30	30	30	30	30	30	30	28	29	29	29	29	29	30	30	30	30	685	
MN	2.6	2.5	2.2	0.5	1.6	1.7	2.0	2.8	2.7	2.0	1.6	1.4	1.3	1.1	1.1	1.2	1.4	2.0	2.3	2.3	2.7	2.8	2.9	2.9	685	
MAX	6.2	5.9	5.9	1.0	4.6	5.1	4.8	10.2	9.1	4.2	4.0	3.7	3.5	2.7	2.4	2.1	2.8	5.0	5.0	6.6	9.0	8.5	8.7	9.4		10.2

Carbon Monoxide Concentrations

Location: BAAQMD Monitoring Station SJ4T
Site #: 7009SJS4T
Year: 1995
Units : ppm
Month:January

HOUR

DAY	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	N	MEAN
1	1.6	1.9	2.4		0.6	0.6	0.6	0.7	0.8	1.1	1.4	1.1	0.8	0.9	1.0	1.0	1.1	1.5	1.6	2.4	2.0	1.6	1.4	1.7	23	1.3
2	1.7	1.7	1.4		1.2	1.1	1.1	1.3	1.3	1.2	1.0	1.0	0.9	0.8	0.8	0.8	0.8	0.9	0.9	0.8	0.7	0.7	0.9	0.7	23	1.0
3	0.5	0.5	0.5		0.6	0.7	0.9	1.2	1.3	1.1	0.9	0.9	0.8	0.8	0.9	0.9	1.4	1.7	1.2	1.5	1.0	0.7	0.6	0.5	23	0.9
4	0.5	0.4	0.3		0.3	0.4	0.5	0.6	0.6	0.5	0.6	0.6	0.7	0.8	1.1	1.4	1.7	1.6	1.3	1.0	0.6	0.5	0.7	0.8	23	0.8
5	0.7	0.8	0.8		0.8	0.8	1.4	2.1	2.5	1.0	0.6							1.6	2.0	2.2	2.4	2.1	1.8	1.5	17	1.5
6	1.1	0.9	0.7		0.5	0.6	0.7	1.4	1.4	1.1	0.9	0.8	0.8	0.9	0.9	0.9	0.9	0.8	0.6	0.6	0.5	0.4	0.5	0.4	23	0.8
7	0.3	0.3	0.3		0.2	0.2	0.2	0.3	0.4	0.6	0.7	0.7	0.5	0.5	0.6	0.5	0.7	0.7	0.5	0.5	0.3	0.3	0.3	0.2	23	0.4
8	0.2	0.3	0.2		0.1	0.1	0.1	0.2	0.2	0.3	0.3	0.3	0.4	0.4	0.4	0.4	0.4	0.6	0.5	0.4	0.4	0.3	0.2	0.2	23	0.3
9	0.2	0.1	0.1		0.1	0.2	0.3	0.4	0.5	0.4	0.3	0.4	0.6	0.5	0.4	0.5	0.3	0.6	0.4	0.3	0.4	0.3	0.2	0.1	23	0.3
10	0.1	0.1	0.1		0.2	0.2	0.4	0.6	0.7	0.8	0.6	0.6	0.4	0.6	0.8	0.7	1.1	1.7	1.8	0.9	0.6	0.7	0.4	0.4	23	0.6
11	0.5	0.6	0.4		0.2	0.3	0.5	0.7	0.8	0.5	0.4	0.5	0.5	0.7	0.8	0.9	1.1	1.3	0.7	0.7	0.5	0.5	0.4	0.3	23	0.6
12	0.3	0.3	0.2	0.2	0.3	0.4	0.7	1.9	2.0	1.6			1.1	1.1	1.1	1.2	1.6	1.6	0.9	0.8	0.7	0.7	0.6	0.6	22	0.9
13	0.5	0.4	0.4		0.3	0.4	0.5	0.6	0.7	0.6		0.7	1.0	0.8	0.8	1.0	1.1	0.8	0.8	0.7	0.6	0.6	0.5	0.5	22	0.7
14	0.4	0.5	0.5		0.3	0.4	0.5	1.0	1.1	0.7	0.6	0.5	0.4	0.6	0.5	0.5	0.5	0.9	1.3	1.6	1.2	0.8	1.1	0.9	23	0.7
15	0.7	0.7	0.5		0.4	0.4	0.4	0.5	0.7	0.8	0.6	0.5	0.5	0.5	0.4	0.3	0.4	0.7	1.6	1.9	1.7	1.4	0.8	0.7	23	0.7
16	0.6	0.5	0.4		0.5	0.7	0.9	1.2	1.2	1.0	0.6	0.5	0.6	0.4	0.5	0.5	0.6	0.8	0.8	0.8	0.9	1.0	1.1	1.0	23	0.7
17	1.7	2.6	2.5		1.7	1.5	2.1	3.6	3.4	1.8	0.9	0.8	0.8	0.6	0.6	0.9	1.2	2.5	2.8	2.8	3.6	2.1	2.0	2.5	23	2.0
18	1.8	1.5	1.2		0.9	1.2	2.1	3.5	3.5	2.8	0.9	0.6	0.6	0.6	0.5	0.7	1.1	1.8	1.6	1.7	2.5	3.8	2.1	1.9	23	1.7
19	1.9	1.5	2.0		2.1	2.2	2.3	4.3	6.8	5.0	2.8	1.5	1.5	1.9	2.0	2.1	2.1	3.9	5.5	5.3	4.1	1.4	1.2	0.6	23	2.8
20	2.3	2.5	1.9		0.4	0.7	1.2	1.4	1.5	0.9	0.8	0.8	0.9	0.8	0.8	0.7	1.2	1.3	0.7	0.6	0.5	0.5	0.5	0.4	23	1.0
21	0.4	0.4	0.4		0.4	0.3	0.5	0.7	0.8	0.7	0.7	0.7	0.7	0.8	0.5	0.6	0.9	1.1	0.8	0.7	0.6	0.7	0.7	0.4	23	0.6
22	0.4	0.4	0.4		0.2	0.3	0.3	0.3	0.4	0.5	0.5	0.5	0.5	0.6	0.5	0.7	0.9	0.9	0.6	0.6	0.6	0.5	0.5	0.5	23	0.5
23	0.4	0.4	0.3		0.4	0.5	0.7	0.9	1.1	0.8	0.6	0.6	0.7	0.6	0.7	0.8	0.9	0.8	0.9	0.8	0.6	0.6	0.4	0.4	23	0.6
24	0.3	0.4	0.4		0.3	0.4	0.7	0.7	0.7	0.7	0.6	0.5	0.6	0.6	0.6	0.7	1.2	1.8	1.7	2.9	3.0	0.6	0.4	0.5	23	0.9
25	0.4	0.4	0.3		0.4	0.7	1.1	3.0	2.6	1.6	1.3		0.6	0.6	0.6	0.7	0.8	1.2	1.3	1.2	1.7	2.3	2.4	1.9	22	1.2
26	1.1	1.1	1.0		0.7	0.7	1.0	1.3	1.4	0.9	0.8	0.7	0.8	0.9	0.9	1.1	1.3	1.4	1.3	1.2	0.9	0.7	0.7	0.5	23	1.0
27	0.4	0.3	0.3		0.2	0.3	0.6	0.8	0.9	0.7	0.7	0.8	0.8	0.8	1.0	1.1	1.3	1.8	1.8	1.3	1.2	1.0	1.1	0.9	23	0.9
28	0.7	0.9	0.8		0.4	0.3	0.4	0.6	0.6	0.7	0.7	0.6	0.6	0.5	0.6	0.7	0.6	0.8	0.9	0.8	0.6	0.7	1.1	1.0	23	0.7
29	1.0	1.4	1.1		0.9	0.8	0.6	0.7	0.9	0.8	0.7	0.8	0.6	0.5	0.5	0.5	0.6	0.8	1.4	2.7	2.8	1.8	2.8	1.7	23	1.1
30	1.9	1.7	1.4		0.6	0.6	0.9	1.5	1.5	1.2	1.1	0.8	1.2	1.3	1.4	1.6	2.1	2.2	1.7	1.8	1.4	1.4	1.9	2.5	23	1.5
31	2.6	2.5	2.4		1.0	1.4	2.0	3.1	2.5	2.4	2.0	1.7	1.3	1.3	1.0	1.3	1.1	1.5	1.7	2.7	2.2	2.2	2.0	1.6	23	1.9
N	31	31	31	1	31	31	31	31	31	31	29	28	30	30	30	30	30	31	31	31	31	31	31	31	704	
MN	0.9	0.9	0.8	0.2	0.6	0.6	0.8	1.3	1.4	1.1	0.8	0.7	0.7	0.8	0.8	0.9	1.0	1.3	1.3	1.4	1.3	1.1	1.0	0.9	704	
MAX	2.6	2.6	2.5	0.2	2.1	2.2	2.3	4.3	6.8	5.0	2.8	1.7	1.5	1.9	2.0	2.1	2.1	3.9	5.5	5.3	4.1	3.8	2.8	2.5		6.8

VEHICLE COUNT RECORD

COUNTY: SANTA CLARA
ROUTE: 85
DIRECTION: SOUTHBOUND
LOCATION: CAMDEN AVE. ON-RAMP

DATE DAY	01/11/95 WEDNESDAY		01/12/95 THURSDAY		01/18/95 WEDNESDAY		01/19/95 THURSDAY	
TIME PERIOD	RAMP VOLUME	FREEWAY VOLUME	RAMP VOLUME	FREEWAY VOLUME	RAMP VOLUME	FREEWAY VOLUME	RAMP VOLUME	FREEWAY VOLUME
15:00-16:00	376	*	408	*	420	*	398	*
16:00-17:00	388	*	400	*	374	*	386	*
17:00-18:00	420	*	464	*	277	*	405	*
18:00-19:00	356	*	346	*	392	*	362	*

* No freeway counts taken at Camden Ave. Counts taken at Union Ave. indicate:
Maximum mainline volume: 5255
Daily Total High of -- 65000

COUNTY: SANTA CLARA
ROUTE: 280
DIRECTION: SOUTHBOUND
LOCATION: DE ANZA BLVD. ON-RAMP

DATE DAY	11/30/94 WEDNESDAY		12/01/94 THURSDAY	
TIME PERIOD	RAMP VOLUME	FREEWAY VOLUME	RAMP VOLUME	FREEWAY VOLUME
24:00-01:00		570		568
01:00-02:00		281		295
02:00-03:00		190		237
03:00-04:00		128		135
04:00-05:00		177		188
05:00-06:00		526		556
06:00-07:00		1675		1667
07:00-08:00		4649		4669
08:00-09:00		5908		5800
09:00-10:00		4264		4314
10:00-11:00		3524		3653
11:00-12:00		3953		3974
12:00-13:00		4200		4331
13:00-14:00		4261		4489
14:00-15:00	1952	4622	1466	4727
15:00-16:00	1343	5394	1342	5204
16:00-17:00	1432	5660	1457	5705
17:00-18:00	1484	5954	1511	6016
18:00-19:00		4992		5094
19:00-20:00		3815		4046
20:00-21:00		2937		2808
21:00-22:00		2426		2585
22:00-23:00		1843		1953
23:00-24:00		1197		1208
TOTAL		73146		74222

PERMIT TO ENTER

Date: October 25, 1994
E.A.: 936203

State of California
Department of Transportation
Post Office Box 23660
Oakland, CA 94623-0660

Permission if hereby granted to the STATE OF CALIFORNIA, DEPARTMENT OF TRANSPORTATION, hereinafter referred to as STATE, to enter upon our lands, for the purpose of conducting an air quality monitoring study according to the following details:

1.) **DESCRIPTION**: The OWNER hereby permits the STATE to access those certain premises with the appurtenances situated in the City of San Jose, County of Santa Clara, State of California and more particularly described as follows: access to the private parking area situated are the rear of 4902 Howes Lane for the purpose of placing a State vehicle containing test equipment and conducting an air qualify monitoring study.

2.) **TERM**: The term of this Permit shall commence on November 1, 1994 and end on January 31, 1995.

3.) **COMPENSATION**: OWNER agrees to accept $300.00 from STATE upon completion of the study as full compensation for electrical power and inconvenience. If OWNER wishes, for any reason, to cancel this Permit before the end of the study, STATE will pay OWNER a pro-rated fraction of the $300.00. If STATE cancels early, STATE will pay the full $300.00.

4.) **EQUIPMENT**: OWNER agrees to allow STATE to place a vehicle containing air quality testing equipment in the rear parking area of 4902 Howes Lane.

5.) **ELECTRICITY**: OWNER agrees to provide STATE electrical power for said equipment. Power consumption by the test equipment will be approximately 200 Watts continuously, and by the heater, 600-800 Watts intermittently as needed to prevent room temperature from dropping below 60 degrees Fahrenheit.

6.) **ACCESS**: OWNER agrees to provide STATE access to said vehicle and equipment upon reasonable verbal request by STATE of one to five days. After initial set-up, access will be needed approximately once a week for approximately 15 minutes for the duration of the study. All access to be at the convenience of the OWNER.

7.) **AGENTS**: The rights and privileges hereby granted to STATE, may at the option of the STATE, be exercised by any authorized agent or contractor of STATE.

8.) **CLAIMS AND LIABILITIES**: By acceptance of this Permit to Enter, it is expressly understood and agreed by and between the parties that STATE agrees to indemnify and save the undersigned OWNERS harmless against any and all loss, damage, and/or liability which may be suffered or incurred by OWNERS and against any and all claims, demands, and causes of action that may be brought against OWNERS caused by, or arising out of, or in any way connected with the use and/or occupancy of said lands of OWNERS by STATE, its agents, contractors or assigns. STATE further agrees to assume full responsibility for any and all further damages caused by STATE'S operation under this Permit and STATE shall, at its option, either repair or pay for such damages.

Sincerely, Randy Sikk

RANDY SIKK
4902 Howes Lane
San Jose, CA 95118

RECOMMENDED FOR APPROVAL:

Robert K. Bachtold
ROBERT K. BACHTOLD
Right of Way Agent

/s/ Dianne Steinhauser
DIANNE STEINHAUSER, Chief
Environmental Engineering Office

ACCEPTED:
STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

/s/ W. J. Dowd
W.J. DOWD, CHIEF
R/W Acquisition Services

PERMIT TO ENTER

Date: October 25, 1994
E.A.: 936203

State of California
Department of Transportation
Post Office Box 23660
Oakland, CA 94623-0660

Permission if hereby granted to the STATE OF CALIFORNIA, DEPARTMENT OF TRANSPORTATION, hereinafter referred to as STATE, to enter upon our lands, for the purpose of conducting an air quality monitoring study according to the following details:

1.) OWNER agrees to allow STATE to park a van containing a carbon monoxide (CO) analyzer, its accompanying data recording unit, a tank of gas containing a safe standardized concentration of CO, and a thermostatically controlled electric heater, on the OWNER's property in the parking lot adjacent to the De Anza Blvd. on-ramp to southbound I-280, in the first two parking slots east of the landscaping, approximately 330 feet east of the air conditioning control building.

2.) OWNER agrees to provide STATE electrical power for said equipment at the electrical control room for the air conditioning plant in the northwest corner of the site. STATE will provide and locate 500 feet of weatherproof #12, 3 conductor Type S electrical extension cable to OWNER's satisfaction from electrical room to the STATE's van. Power consumption by the test equipment will be approximately 200 Watts continuously, and by the heater, 600 Watts intermittently as needed to prevent internal temperature of van from dropping below 60 degrees Fahrenheit.

3.) OWNER agrees to allow STATE access to said van and equipment. After initial set-up, access will be needed approximately three times a week for approximately 15 minutes for the duration of the study to calibrate the analyzer and download the data.

4.) OWNER acknowledges that study will last roughly three months, from November 1, 1994 to January 31, 1995.

The rights and privileges hereby granted to STATE, may at the option of the STATE, be exercised by any authorized agent or contractor of STATE.

By acceptance of this Permit to Enter, it is expressly understood and agreed by and between the parties that STATE agrees to indemnify and save the undersigned OWNERS harmless against any and all loss, damage, and/or liability which may be suffered or incurred by OWNERS and against any and all claims, demands, and causes of action that may be brought against OWNERS caused by, or arising out of, or in any way connected with the use and/or occupancy of said lands of OWNERS by STATE, its agents, contractors or assigns. STATE further agrees to assume full responsibility for any and all damages caused by the STATE's operation under this Permit and State shall, at its option, either repair or pay for such damages.

Sincerely,

Cupertino Gateway Partners
a California general partnership

By: ACI Real Properties, Inc.,
a Delaware corporation
Its: General Partner

By: [signature]
Its: VICE PRESIDENT
Date: 11/21/94

1023 Bubb Rd. - MS6D
Cupertino, CA 95014
Attn: Tim Wayeman

RECOMMENDED FOR APPROVAL:

[signature]
ROBERT K. BACHTOLD
Right of Way Agent

/s/ Dianne Steinhauser
DIANNE STEINHAUSER, Chief
Environmental Engineering Office

ACCEPTED:
STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

/s/ W. J. Dowd
W.J. DOWD, CHIEF
R/W Acquisition Services

DEPARTMENT OF TRANSPORTATION
BOX 23660
OAKLAND, CA 94623-0660
(510) 286-4444
TDD (510) 286-4454

January 30, 1995

Mr. Randy Sikk
4902 Howes Lane
San Jose, CA 95124

Dear Mr. Sikk:

First of all I would like to thank you for your generosity in letting us utilize the electrical outlet at your home these past three months to run the equipment for conducting carbon monoxide sampling along the recently completed Route 85 freeway.

The information we have gathered will help us to improve the operation of this highway and others in the Bay Area and at the same time assure that air quality standards are not violated.

After our analysis is completed, the results will be summarized into a technical memorandum and submitted to various government agencies for their use and information. Of course, we will send a copy to you.

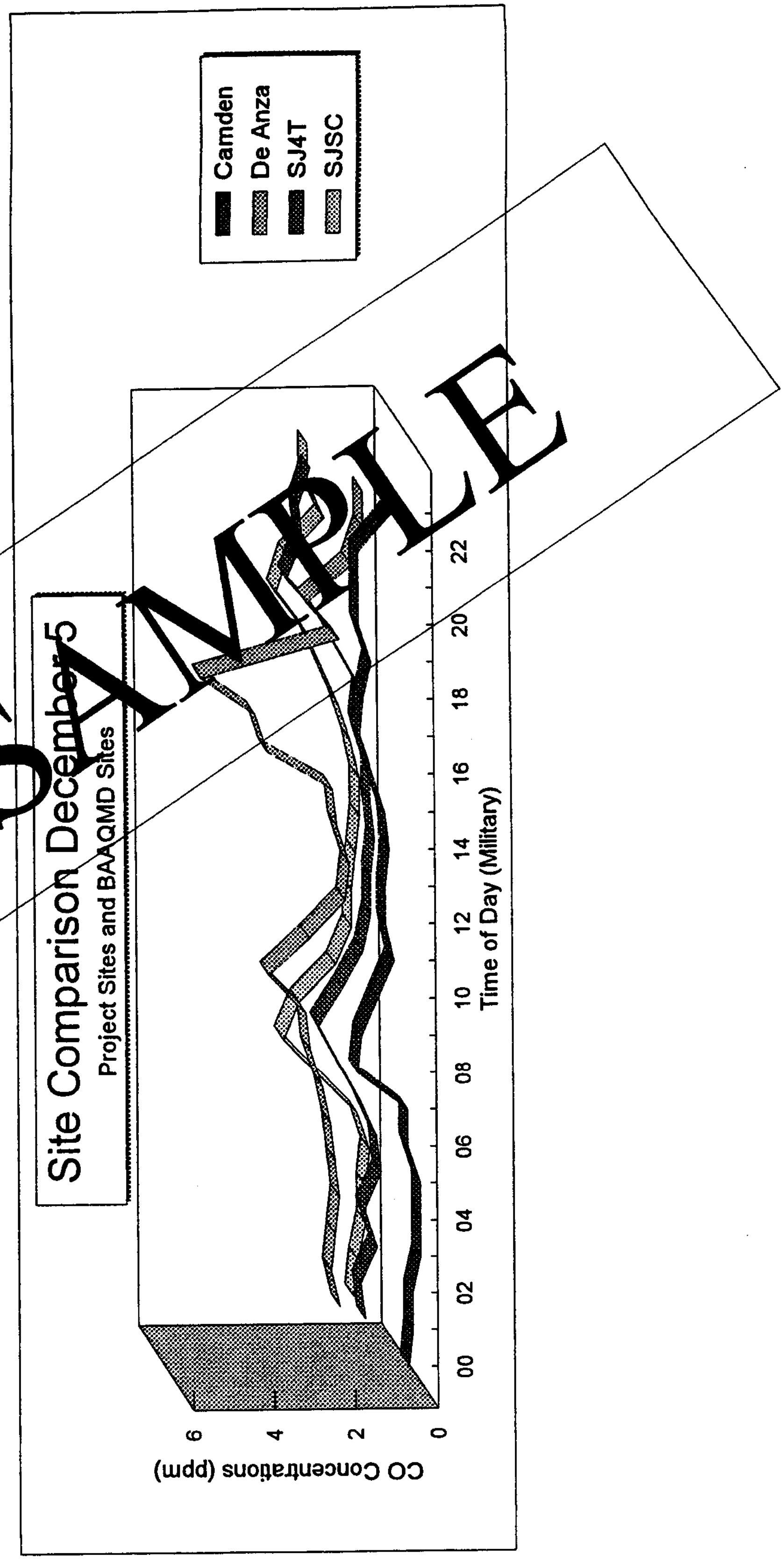
I have instructed our Right of Way Office to process payment in the amount of $300 to compensate you for the use of your property and electrical power to operate our equipment.

Thank you again for your cooperation.

Sincerely,

Joe B

JOE BROWNE
District Director


Site Comparison December 5
Project Sites and BAAQMD Sites
Camden
De Anza
SJ4T
SJSC
CO Concentrations (ppm)
0
2
4
6
00
02
04
06
08
10
12
14
16
18
20
22
Time of Day (Military)
SAMPLE